EXAMINATION (total time 18 mins)

LOGISTICS

For GPE, Respiratory, GI, CVS and motor part of CNS

1) Watch
2) Thermometer
3) BP apparatus
4) Stethoscope
5) Torch
6) Hammer
7) Measuring tape
8) Tongue depressor
9) Scale for JVP measurement
10) Key

For sensory part of CNS

1) Cotton
2) Paper pin
3)Tuning fork 128

For Cranial nerves

1) To check sense of smell lemon, soap, banana, mint, orange peel
2) Near vision chart
3) Snellen's chart
4) Ishihara chat
5) Fundoscope
6) Red hat pin
7) To check taste sensation sugar, salt, vinegar.
8) Tuning fork 256

GPE (3minutes)

After history taking is over proceed with the examination. If the patient is sitting then ask him to lay supine with the couch preferably at 45^0. Ask him to put off his shirt. Cover below umbilicus with sheet.

Look for any IV canula, NG tube, Foleys catheter, O_2 mask or central venous line.

GENERAL LOOK: Spend 5 seconds for a general look for any obvious finding like obesity, emaciation, cushingoid face, hyper or hypo thyroid or nephrotic or scleroderma or Parkinson face or presence of butterfly rash.

VITALS: Start GPE with checking his vitals. Check temperature with thermometer in left axilla. Check pulse rate, rhythm, character and radio radial and radio femoral delay and collapsing pulse (ask for shoulder pain before checking collapsing pulse دائیں کندھے میں درد تو نہیں؟). Check RR, BP.

HANDS: NAILS (6): Then move to hands. On nail look for leuconychia, koilonychia, clubbing, nicotine stains, splinter hemorrhages, psoriatic nail pitting.

HANDS: PALMER ASPECT (8): On palmer aspect look for Sweaty hands, pallor, cyanosis, palmer erythema, dupuytren's contracture, skin crease pigmentation, Osler nodes, janewey lesions.

HANDS: DORSAL ASPECT (4): On dorsum of hand look for Wasting, bouchard's nodes (PIPJ), heberden's nodes (DIPJ), RA deformities.

HANDS: TREMORS (2): Then look for tremors. Both fine tremors and flaps.

ARMS (5): In the upper limb look for bruises, AV fistula, rheumatoid nodules one extensor surface of forearm and epitrochler lymph nodes (NHL) and tattoos.

FACE: EYES (4): Then move to face. In eyes look for pallor, jaundice, congestion (conjunctivitis, scleritis, episcleritis, uvetis etc), xanthelasmas. (Or any obvious cranial nerve finding can roughly be checked at this point e.g. ptosis, eye movements, nystagmus and light reflexes).

FACE: CHEEKS (2): On cheeks check for rash or parotid enlargement.

FACE: ORAL CAVITY (5): In oral cavity look for oral hygiene, central cyanosis, texture of tongue (bald tongue, beefy tongue etc or thrush), throat congestion and palatal and uvula movements (cranial nerve IX and X).

NECK (3) Then move to neck ask him to swallow گھونٹ بھریں / تھوک اندر نگلیں. Look for goiter. Look for JVP with hepatojuglar reflex. Look for dancing carotids (Corrigan's sign of AR). Then neck and axillary lymph nodes. (Examination of Neck lymph nodes is to be postponed and checked when the patient is made to sit for examination of back of chest).

LEGS AND FEET (6): Then move down to legs to look for pedal edema, diabetic foot, and in legs for bruising, DVT, or cellulitis or obvious vericos veins.

After GPE is complete then move on to systemic examination. Start with the system most likely expected to be involved on basis of history and GPE.

RESPIRATORY SYSTEM

BACK OF CHEST (3mins)

EXPOSURE: shirt off

POSTURE: sitting with the back towards examiner, arms crossed (ask him to cross his arms maximally to move scapula apart).

INSPECTION (7)

Stand at some distance and ask patient to take deep breaths گہرے گہرے سانس لیں

Look for (1) shape of chest, (2) movement of chest with breathing, (3) any deformity of spine, (4) any bulge or asymmetry, (5) bandage for pleural fluid aspiration or chest tube insertion or pleural biopsy, (6) intercostal recession (7) any visible veins or scar marks.

PALPATION (5) (or 3 if 4 and 5 are omitted)

Warm your hands by rubbing before touching the patient and ask for pain چھاتی میں درد تو نہیں

1) Palpate chest generally for tenderness and ask for pain اگر ہاتھ لگانے سے درد ہو تو بتائیں

2) Check integrity of spine and spine tenderness (look at the face while checking for tenderness)

3) Chest movements: thumbs should not touch the chest wall and should be almost meeting in midline. Check at 2 points on back (Apex and lower chest). (Thumbs should move at least 5cm apart).

4) Chest expansion with measuring tape at the level of nipples. (May or may not check).

5) Vocal fremitus. (May or may not check).

PERCUSSION (1)

Percus apices, back and lateral chest, compare the 2 sides. (Don't forget lateral chest and axillas. Improve your percussion technique with practice)

AUSCULTATION (2)

1) Auscultate apices, back and lateral chest, compare the 2 sides, don't forget lateral chest and axillas. Listen for quality of breath sounds (vesicular or bronchial), intensity of breath sounds (normal, increased or decreased), and any added sounds (crepts or wheeze or pleural rub). If crepts are heard then ask the patient to cough and look for change in crepts character. (Crepts unchanged with coughing.....DPLD). Check if crepts or wheeze is inspiratory or expiratory.
2) Vocal resonance: ask the patient to say 3, 3, 3. بولیں تین، تین، تین Listen at apices, back and lateral chest, compare the 2 sides, don't forget lateral chest and axillas.

(Respiratory examination is not complete without checking mediastinal shift i.e. trachea and apex beat localization do it as first thing as soon as u have asked him to lay supine).

While the patient is sitting use the opportunity to check sacral edema and then neck lymph node examination if not checked during GPE.

FRONT OF CHEST (3mins)

For examination of front of chest ask him to lie on couch with couch angled at 45 degrees, arms by side and slightly abducted.

Inspect from foot end and from side tangentially. Look for same findings as mentioned in inspection of back of chest plus look for type of breathing. In palpation after checking for chest tenderness, check for trachea and apex beat and then check for chest movements. In percussion, percus in supraclavicular fossa as well and don't forget lateral chest and axillas. Also look for liver dullness. Auscultation and vocal resonance is same as for back of chest.

CVS (3mins)

EXPOSURE: shirt off

POSTURE: Laying supine with bed at 45^0, arms by side and slightly abducted.

INSPECTION (4)

1) From foot end look for any (1) bulge or asymmetry or (2) deformity, (3) visible veins or scar marks (sternotomy, valve replacement, TPM)
2) From right side of patient look for (4) pulsations (apex beat, pulsatlie precordium, epigastric pulsations or pulsations in suprasternal notch)

PALPATION (5)

Warm your hands by rubbing before touching the patient and ask for pain چھاتی میں درد تو نہیں

1) Palpate chest generally for tenderness and ask for pain اگر ہاتھ لگانے سے درد ہو تو بتائیں
2) Apex beat. Measure it in relation to intercostals spaces and mid clavicular line. If not palpable then turn the patient to left side and palpate. (Note its character i.e. normal, heaving or tapping or thrusting or forceful).
3) Palpate all the areas for thrill. If thrill felt, then time it with carotids (i.e. systolic or diastolic). (Also note if P2 is palpable in while palpating pulmonary area).
4) Left parasternal heave (RVH).
5) Epigastric heave (RVH).

AUSCULTATION (5)

1) Relocate apex beat (to define the mitral area) and then auscultate it while the thumb of left hand on patients right carotid pulse. Listen for intensity of heart sounds i.e. soft or loud (S1 soft in MR and loud in MS). If systolic murmur is heard then look for its radiation into the axilla.

   Turn the patient to left to listen for diastolic murmur in mitral area (MS) with bell and the patient to expire سانس اندر لیں - باہر نکالیں اور باہر نکال کر روک لیں
2) Then auscultate tricuspid area for intensity of heart sounds (soft S1 in TR) or murmur. Ask the patient to inspire سانس اندر لیں اور اندر لے کر روک لیں
3) Then auscultate pulmonary area for intensity of heart sounds or murmur. (Loud P2 in pulmonary HTN). Also focus on split of 2nd heard sound in pulmonary area. Ask the patient to inspire سانس اندر لے کر روک لیں. (Split is best heard in pulmonary area with breath held in inspiration, delaying RV emptying and increasing the split).
4) Then auscultate aortic area (A1) for intensity of heart sounds (loud A2 in HTN while soft A2 in AS or AR) or murmur. Ask the patient to expire سانس باہر نکال کر روک لیں (if ejection systolic murmur of AS is audible then check its radiation to carotids).
5) Then ask the patient to sit and bend forward with steth placed on A2 area. Ask him to expire سانس باہر نکال کر روک لیں. And listen for diastolic murmur of AR.

   Note: If there CVS examination is suggestive of any particular valvular lesion then examination can be modified at this point to look for peripheral signs of that valvular lesion e.g. in case of early diastolic murmur of AR, look for peripheral signs of AR.

ABDOMINAL EXAMINATION (3mins)

POSTURE: Lying supine

EXPOSURE: Expose from nipples to mid thigh ideally and cover the rest with sheet.

INSPECTION (9)

1) Inspect from foot end for (1) symmetry, (2) shape, (3) umbilicus, (4) hair distribution, (5) visible veins and scar marks.
2) Inspect from side from bed level (tangentially) for (6) pulsation and (7) peristalsis.
3) Ask the patient to cough and look for (8) cough impulse at hernia orifices.
4) Inspect for (9) genitalia but take separate consent first.

PALPATION (8 or 6 if hernia orifices and aorta are omitted)

- Warm your hands by rubbing before touching the patient and ask for pain and ask him to relax his abdomen پیٹ میں کسی جگہ درد تو نہیں اگر ہاتھ لگانے سے درد ہو تو بتائیں
- Look at face during palpation. May flex the knees if abdomen not adequately relaxed.

1) Superficial palpation.
2) Deep palpation for Lymph nodes and masses.
3) Liver: measure span in cms (measure your finger breadth). If palpable describe other features of liver like border, consistency, surface, tenderness.
4) Spleen: use all three methods if not palpable. If palpable focus on features like size, consistency, notch etc. (palpation by laterally turning the patient to be done when the patient is turned lateral for checking shifting dullness).
5) Kidneys: bimanual palpation.
6) Urinary bladder: palpate using left hand. No command for breathing.
7) May palpate hernial orifice with command for cough.
8) May palpate for aorta in midline above umbilicus with finger tips

PERCUSSION (3)

1) Percus all quadrants radially from umbilicus.
2) Shifting dullness.
3) Fluid thrill. Only if appropriate. Place the patient's hand in center only if thrill is felt without placing the hand.

AUSCULTATION (4).

1) For bowel sounds auscultate on right side of umbilicus. Normal frequency is 1 per 5-10 sec. Labeled absent if not heard for 2min.
2) For aortic bruit (aneurysm/atheroma), auscultate above umbilicus in midline.
3) For renal bruit (renal artery stenosis), auscultate 2-3cm above and lateral to umbilicus.
4) For hepatic or spleenic bruit (in case of hepato or spleenomegally) or friction rub, auscultate over liver and spleen.
5) Succession splash: not routinely done.

CNS (8mins)

Scheme: start with motor system of lower limb then motor system of upper limb then sensory system (4 sensations light touch, joint position sense, vibration, superficial pain(deep pain and temperature can be omitted))then cerebellum and then cranial nerves. Stance and Gait and fundoscopy can be checked at the completion of all the examination. Examination of CNS may need to be shortened in situations where CNS pathology in not expected and there is limitation of time.

MOTOR SYSTEM OF LOWER LIMB

POSTURE: lying supine.

EXPOSURE: expose legs up to mid thighs (up to umbilicus is ideal in order to ensure inspection for proximal muscle wasting)

1. INSPECTION (4)

From foot end Inspect for wasting, asymmetry, deformity / contractures and abnormal movements / fasciculations.

2. PALPATION (3 OR 2 IF 3 IS OMITTED)

Warm your hands by rubbing before touching the patient and ask for pain ٹانگوں میں درد تو نہیں

1) Check for fasciculations by tapping the muscles.
2) Palpate the muscles generally for tenderness (myositis). Look at the face while palpating.
3) Bulk: can be measure with measuring tape from some reference point like medial maleolus or tibial tuberosity.

3. TONE (2)

Ask the patient to relax ٹانگیں ڈھیلی چھوڑ دیں

1) Begin with rolling movement of leg.
2) Check tone in full range of movement in toes, ankle, knees and hip.

4. POWER (4 OR 3 IF TOES ARE OMITTED)

Compare the power one by one on both limbs.

1) Toes (2): dorsiflexion and planterflexion.

2) Ankle (4): dorsiflexion, planter flexion, inversion, eversion.

3) Knee (2): flexion, extension.

4) Hip (6): adduction, abduction, flexion, and extension, internal & external rotation (resistance at the level of feet).

Power grades (MRC scale for muscle power):0/5 no visible muscle contraction. 1/5 muscle contractions visible but no movement at joints. 2/5: joint movement possible only when effect of gravity is eliminated. 3/5: movement possible against gravity but not against resistance. 4/5: movement possible against resistance but less than normal. 5/5: normal power.

5. REFLEXES

Pre requisites: (1) inform the patient about hammer. (2) Compare all reflexes one by one. (3) Try to ensure free fall movement of hammer. (4)Try to do minimum attempts for each reflex (Avoid repetition). (5) Reinforcement in case reflexes are absent. (6) clonus in case reflexes are exaggerated.

Deep tendon reflexes(2)

Ask the patient to relax his legs ٹانگیں ڈھیلی چھوڑ دیں

1. Ankle (S1,2): stretch the Achilles tendon by passive dorsiflexion at ankle by left hand. Eliciting Left sided ankle jerk is difficult, has to cross the arms.(practice it)
2. Knee (L3,4):

Description of reflexes: hyperactive (+++), normal (++), sluggish (+), with reinforcement (+/-), absent even with reinforcement (-).

Superficial reflexes (1) or (3)

1. Planters (S1, 2): tell about key to the patient. Scratch the most lateral part of sole and then medially after reaching base of little toe. Stop at the point where reflex is elicited.
2. Abdominal (T8-12): (if clinically indicated depending upon the findings of examination) move inward from outwards.
3. Cremastaric reflex (L1L2): rarely done.

MOTOR SYSTEM OF UPPER LIMB

EXPOSURE: shirt off

POSTURE: lying supine.

1. INSPECTION (4)

From foot end Inspect for wasting, asymmetry, deformity / contractures and abnormal movements / fasciculations.

2. PALPATION (3 OR 2 IF 3 IS OMITTED)

Warm your hands by rubbing before touching the patient and ask for pain بازوؤں میں درد تو نہیں

1) Check for fasciculations by tapping the muscles.
2) Palpate the muscles generally for tenderness (myositis). Look at the face while palpating.
3) Bulk: can be measured with measuring tape from some reference point like ulner styloid process).

3. TONE (2)

Ask the patient to relax بازو اور ہاتھ ڈھیلے چھوڑ دیں

1) Start with Shaking hand manure.
2) Check tone in full range of movement in fingers, wrists, elbows and shoulders.

4. POWER (5 JOINTS BUT IF NOT VERY RELEVANT THEN 3 (THUMB AND FINGERS CAN BE OMITTED EXCEPT JUST CHEKING FOR POWER OF GRIP OF HAND))

Compare the power one by one.

1) Thumb (5): flexion, extension, adduction, abduction, opposition.
2) Fingers (4): adduction (paper or card method), abduction (spreading fingers against resistance), flexion, extension (making and opening fist).
3) Wrist (4): flexion, extension, radial and ulner deviation.
4) Elbow (2): flexion and extension.
5) Shoulder (6): flexion, extension, adduction abduction, internal and external rotation (moving semi flexed elbow inwards and outwards against resistance).

5. REFLEXES (3):

Pre requisites: (1) again inform the patient about hammer before checking reflexes. (2) Compare all reflexes one by one. (3) Try to ensure free fall movement of hammer. (4)Try to do minimum attempts for each reflex (Avoid repetition). (5) Reinforcement in case reflexes are absent.

1) Brachioradialis (C5, 6): place both the hands at thighs (making the angle at elbow obtuse).

2) Biceps (C5, 6): with the hands placed same way as for brachioradialis reflex (making the angle at elbow obtuse), place your finger or thumb on bicep tendon and strike the hammer on your finger or thumb.

3) Triceps (C6, 7): hold patients forearm with your left hand. Bend the elbow, making angle at elbow obtuse to stretch triceps tendon and then strike the tendon directly.

SENSORY SYSTEM

PRIMARY SENSATIONS: DORSAL COLUMN SENSATIONS (3):

1. **LIGHT TOUCH** (mostly by dorsal column but at times also transmitted by lateral spinothalamic tract): use wisp of cotton (Tissue paper or lightly applied pressure by finger are alternates).

   In the lower limb Start from S1 (lateral sole and lateral dorsum of foot), L5 (medial dorsum of foot and lateral leg), L4 (medial leg and lateral thigh), L3 (medial thigh), L2 (upper medial thigh), L1 (inguinal ligament area and just above it). On posterior aspect S1 (lateral sole and lateral leg), S2 (postero-medial leg), S3 (postero-medial thigh), S4 (perineum).

   In the upper limb Start from C6 (thumb and lateral forearm), C7 (middle and index finger and mid palm), C8 (little finger and medial forearm), T1 (medial arm), T2 (upper medial arm and axilla), C4 (shoulder and upper deltoid). C5 (lateral arm).

2. **JOINT POSITION SENSE:** In lower limb check at big toe bilaterally. First demonstrate to the patient. Hold the patient's big toe from its sides by your thumb and index finger. If impaired, move to MTPJ of big toe. If still impaired then move to ankle or knee. Ask the patient to avoid guessing.
   کیا آپ کو انگوٹھے کے اوپر یا نیچے ہونے کا پتہ چلتا ہے اگر نہیں تو اندازہ نہ لگائیں

   In upper limb check at DIPJ of index finger. First demonstrate to the patient. Hold the patients distal digit of index finger from its sides by your thumb and index finger. If impaired then keep checking proximally i.e. PIPJ, MCPJ, wrist, elbow.

3. **VIBRATION:** use 128 Hz tuning fork. First apply over sternum and make sure that the patient appreciates buzzzzzzzzz, not the touch کیا آپ کو تھرتھراہٹ محسوس ہو رہی ہے

   In lower limb Check at tip of big toes of both feet. If absent then keep moving proximally (IPJ of big toe, medial maleolus, tibial shaft, tibial tuberosity, anterior superior iliac spine), till vibration is perceived. To increase sensitivity of test ask the patient to report when vibration is stopped by holding the tuning fork.

In upper limb check at DIPJ of index finger of both hands. If absent then keep moving proximally (radiostyloid process, olecrenon process, acromian process), till vibration is perceived.

PRIMARY SENSATIONS: LATERAL SPINO THALAMIC TRACT (3 or 1 if deep pain and temperature are omitted):

1. **SUPERFICIAL PAIN:** Use paper pin and use different pin for each patient to void transmission of hepatitis or HIV. First test on sternum and ensure that the ;patient can differentiate between head end (touch) and pointed end (pain). Neurological pin (neurotip) is preferred. Test for pain in all the dermatomes as mentioned in light touch.
2. **DEEP PAIN:** in lower limb apply firm compression on patient toe nails or squeeze the belly of calf muscles and ask the patient to report when the sensation becomes painful. While in upper limb apply firm compression on patient finger nails or squeeze the belly of biceps or triceps and ask the patient to report when the sensation becomes painful.
3. **TEMPERATURE:** not usually done. Tuning fork can be used as cold object but better way is to use hot and cold water filled serum bottles.

CO ORDINATION **(11 but 9 since tone is already checked in motor system)** (scheme – GPE sequence i.e. hands-arms-face-neck-trunk-legs)

POSTURE: while checking co ordination and cranial nerves patient sits, facing the doctor.

HANDS (3): Finger nose test (place your target finger at a distance to ensure full extension at elbow, finger – finger test, disdiodokokinesia (perform with arms fully extended).

ARMS (2): check tone (omit if already checked in motor system)(hypotonia), rebound phenomenon.

EYES (1): nystagmus (don't check at extreme of gaze)(fast component is towards the site of lesion)

SPEECH (1): Pakistan, Mustansar. (Scanning speech) بولیں پاکستان - بولیں مستنصر

KNESS (1): knee jerk while patient sits at the end of couch with legs hanging (pendular in cerebellar lesion).

LEGS (2): check tone (omit if already checked in motor system) (hypotonia). Heel – knee - shin test.

GAIT: (to be checked at the end of all the examination) walking on straight line with heel-toe gait with bare feet.

CRANIAL NERVES

Note: Detailed examination of cranial nerves is given in the other document with the title of Salman notes 4. Here is modified scheme of examination of cranial nerves keeping in mind the limitation of time in long case and in cases where cranial nerve pathology is less expected.

Posture: Most of examination of cranial nerves is done with the patient sitting.

OLFACTORY NERVE (1)

Ask about any disturbance in sense of smell.
آپ کو زکام تو نہیں؟ ناک کی ہڈی کا کوئی مسئلہ یا ناک کے اندر درد کا کوئی مسئلہ تو نہیں؟
آپ کو سونگھنے میں کوئی مسئلہ تو محسوس نہیں ہوتا۔ چیزوں کی بو محسوس ہو جاتی ہے؟

OPTIC NERVE (2)

Ask about history of problem in visual acuity, use of glasses
آپکی نظر ٹھیک ہے؟ دور کا اور قریب کا ٹھیک ٹھیک نظر آ جاتا ہے؟ عینک
استعمال کرتے ہیں؟ رنگوں کی پہچان میں کوئی مسئلہ تو نہیں ہوتا؟

Check light reflex (both direct and consensual).

(Visual field by confrontation method, far vision by Snellen's chart, colour vision by Ishihara chart and near vision by near vision charts are to be check only in cases where there problem is expected) (Fundoscopy can be done at the end of all the examination unless needed)

OCCULOMOTOR, TROCHLEAR, ABDUCENT NERVE (3)

1) INSPECTION: look at palpebral fissure (ptosis) or squint or nystagmus.
2) Ask about diplopia: آپ کو چیزیں دو دو تو نظر نہیں آتیں؟
3) EYE MOVEMENTS: with both eyes open ask the patient to follow your moving finger and report if he has diplopia.
سر کو ہلائے بغیر میری انگلی کو دیکھنے کی کوشش کریں اور جہاں
جہاں انگلی جائے اُسے دیکھتے رہیں مگر صرف آنکھوں کی حرکت سے۔ سر نہ ہلائیں۔
اور اگر دو دو نظر آئیں تو بتائیں۔

The finger moves in the figure of "H". Look for nystagmus during movement of eye ball. If diplopia is reported close each eye one by one to pick which eye is causing false image. The false image is lateral one.

4) ACCOMMODATION REFLEX:

(Light reflex already checked)

TRIGEMINAL NERVE (3)

1) SENSORY PART (2): with wisp of cotton for light touch and pin for pain check the 2 sensations in 3 divisions of 5th nerve. (First demonstrate to the patient by applying stimulus on sternum).

2) MOTOR PART (3):

   a. Inspection: look for wasting of temporalis above zygomatic arch

   b. Ask him to clench his teeth while palpating the temporalis and maseters.

   اپنے دانت زور سے دبائیں -

   c. Check pterigoids by asking him to open his mouth against resistance and then moving the jaw sideways against resistance.

3) REFLEXES (2) (can be omitted unless needed):

   a. Corneal: with wisp of cotton touch the cornea not conjunctiva with patient looking towards opposite side. Look for both direct and consensual response. (Contraction of orbicularis occuli of both sides is normal response. Afferent by V1 and efferent by VII).

   b. Jaw jerk: let the jaw hang loose. Place your index finger between chin and lower lip. Hit the hammer in downward direction.

FACIAL NERVE (3)

1) HISTORY: Ask about history of lacrimation, dribbling of food or saliva from mouth, altered taste sensation, hyperacusis.

آنکھوں سے پانی تو نہیں آتا؟ منہ سے کھانا یا تھوک گرتا تو نہیں؟ چیزوں کا ذائقہ ٹھیک سے پتہ چل جاتا ہے؟ کسی ایک کان میں آواز زیادہ تو نہیں محسوس ہوتی؟

2) INSPECTION (5): look for asymmetry, redness or tearing from eye, nasolabial folds, wrinkles on forehead. Also look for vesicles in external auditory canal.

3) COMMANDS (4): Then ask the patient to

i) Make wrinkles on forehead. سر ہلائے بغیر چھت کی طرف دیکھنے کی کوشش کریں؟ ماتھے پر بل ڈالیں -

ii) Close the eyes forcefully against resistance آنکھیں زور سے بند کریں اور کھولنے نہ دیں

iii) Show teeth - دانت دکھائیں

iv) Blow air in moth with closed lips and then tap the cheeks منہ میں ہوا بھریں

(watch test for hyper accuses and taste sensation in anterior 2/3rd of tongue can be omitted unless eeded).

ESTIBULOCOCHLEAR NERVE

'ESTIBULAR PART (3)

1) HISTORY: Ask about any hearing difficulty or ear discharge
کان سے پیپ تو نہیں آتی؟ سنائی ٹھیک دیتا ہے؟

2) INSPECTION: examine the external auditory canal for scars, wax, redness (or tenderness)

3) HEARING TESTS (3)(may do any of 3):

   a. WHISPER TEST: From a distance of 60cm and the other ear closed and not letting the patient to read your lips, whisper 68 (for low pitched sound) and 100 (for high pitched sound).

   b. WATCH TEST:

   c. FINGER RUBBING TEST:

   (TUNING FORK TESTS i.e. Rennes test and Weber's test can be omitted unless needed)

CHOCHLEAR PART (1)

HISTORY: ask about history of vertigo. چکر تو نہیں آتے؟

(Hal pike's maneuver, caloric test and doll's eye movements are only for special situations)

VAGUS AND GLOSSOPHARANGEAL NERVES (5)

1) HISTORY: ask about history of regurgitation کھانا کھاتے وقت کھانا یا پانی ناک سے تو نہیں آتا؟

2) SPEECH: Ask him to say "egg": check for nasal twang. بولیں "ایگ"

3) Ask him to cough: check for bovine cough. کھانسی کریں -

4) Ask him to blow air in mouth with closed lips: منہ میں ہوا بھریں
Unable to do it in case of 9th and 10th nerve palsy as the air escapes from nose.

5) THROAT EXAMINATION: ask him to say aaaaaaaaaa. بولیں آ آ آ

Check the movement of uvula. (Normally there is symmetrical rise of uvula and no deviation.

(Swallow test and touching posterior pharyngeal wall with orange stick can be omitted unless needed)

ACCESORY NERVE (4)

Examiner is to stand at the back of the patient:

1) INSPECTION: inspect from behind for wasting of trapezius.
2) PALPATE: palpate for bulk of sternocledomastoid and trapezius to look for atrophy.
3) Ask the patient to turn his face towards right against resistance and palpate left sternocledomaastoid and vice versa.
4) Ask the patient to shrug his shoulders against resistance کندھے اوپر اٹھائیں / اچکائیں

HYPOGLOSSAL NERVE (3)

1) Inspect while the tongue is still in mouth for wasting (wrinkles), fasciculations and then ask him to protrude it. زبان باہر نکالیں

Look for deviation (reference is incisors) or abnormal movements.

2) Test the power by palpating the cheeks while he presses the tongue against the cheeks. زبان کو منہ کے اندر کی طرف سے گالوں پر زور سے لگائیں -
3) Ask him to say lalalalalala. بولیں لا لا لا -

STANCE AND GAIT

STANCE AND GAIT AND FUNDOSCOPY ARE TO BE CHECKED AT THE END AFTER COMPLETION OF ALL THE EXAMINATION UNLESS NEEDE.

Romberg's Test: Ask the patient to stand with feet together and eyes open. Check for steadiness. Then ask the patent to close his eyes.

(Patient with cerebellar lesion cannot stand steady even with eyes open. With proprioceptive or vestibular deficit, balance deteriorates by closing eyes.)

Ask the patient to walk with bare feet and preferably trouser lifted. Look at the gait. Ask the patient to walk on straight line with heel – toes walk (tandem walk).

Ask the patient to sit and then stand up without support to look for proximal muscle weakness.

(4 remaining components of nervous system examination i.e. higher mental functions/mini mental state examination, cortical sensations, primitive reflexes and SOMI to be checked in special cases)

"THANKS AND COVER THE PATIENT"

LONG CASES TOPICS TO STUDY

Sr. #	Unit	Topic	Included Topics
1	Pulmo	Asthma	
2	Pulmo	COPD	
3	Pulmo	Bronchiectasis	
4	Pulmo	Pneumonia	
5	Pulmo	ILD	
6	Pulmo	TB	
7	Pulmo	CA Lung	
8	Pulmo	Sarcoidosis	
9	Pulmo	Pulmonary Embolism	
10	Pulmo	Pulmonary Hypertension	
11	Pulmo	Pickwickian Syndrome	
12	Pulmo	Pneumothorax	
13	CVS	Valvular Heart Disease	
14	CVS	Ischemic Heart Disease	
15	CVS	Atrial Fibrillation	
16	CVS	Heart Failure / CCF	
17	CVS	Rheumatic Heart Disease	
18	CVS	Infective Endocarditis	
19	CVS	Constrictive pericarditis	
20	CVS	Hypertension	
21	CVS	Peripheral Arterial Disease	
22	CVS	Aortic Aneurysm	
23	Blood	Anemia	
24	Blood	hemolytic Anemia	
25	Blood	Pancytopenia	Aplastic Anemia
26	Blood	Thrombocytopenia/ITP	
27	Blood	Lymphoproliferative Disorders	
28	Blood	Multiple Myeloma	
29	Blood	Myeloproliferative Disorders	
30	Blood	Stem Cell Transplantation	
31	Blood	Blood Transfusion	
32	Blood	Bleeding disorders	
33	Blood	DVT/PE	
34	GIT	APD	
35	GIT	Chronic Diarrhoea	IBD, Celiac, Small Bowel Lymphoma, CA Colon
36	Liver	Ascites	
37	Liver	Upper GI Bleed	
38	Liver	CLD & its complications	Encephalopathy
39	Liver	HCC	
40	Liver	CLD Due to	Wilson,Hemochromatosis, NASH,PBC
41	Liver	Jaundice	
42	Liver	Liver abscess	
43	MSK	Rheumatoid Arthritis	
44	MSK	Other arthropathies, Gout	
45	MSK	SLE & APS	
46	MSK	Scleroderma	
47	MSK	Myopathies	
48	MSK	Sjogren syndrome	

49	MSK	MCTD	
50	MSK	Vasculitis	Wegner's, Chrug Straus
51	MSK	Seronegative arthritis	
52	Renal	CKD	
53	Renal	Nephrotic Syndrome	
54	Renal	AKI	
55	CNS	Epilepsy	
56	CNS	Stroke & TIA	
57	CNS	Meninoencepahlitis, TBM	
58	CNS	Multiple Sclerosis	
59	CNS	GBS	
60	CNS	Myasthenia Gravis	
61	CNS	Periodic paralysis	
62	CNS	Myelpathies	
63	Endo	Diabetes mellitus	
64	Endo	Acromegaly	
65	Endo	Hypothyroidism	
66	Endo	Hyperthyroidism	
67	Endo	Addisons Disease	
68	Endo	Cushing syndrome	
69	Infections	AIDS	
70	Infections	Brucellosis	
71	Infections	Syphilis	
72	Infections	Leptospirosis	
73	Infections	Amebiasis	
74	Infections	Malaria	
75	Infections	Aspergillosis	
76	Infections	Mucormycosis	
77	Poisoning	Alcohol	
78	Inherited	Porphyrias	
79	Inherited	Marfan Syndrome	

LONG CASES APPROACH

Serial	Approach to	Topics to be covered in this approach
1	SOB	Pulmonary, CVS, CKD, CLD, CA Lung
2	Chest Pain	
3	Fever/PUO	
4	palpitations	
5	Approach to body swelling	
6	pain abdomen	
7	Chronic Diarrhoea	
8	Abdominal distension	
9	Jaundice	
10	Upper GI Bleed	
11	ASOC	
12	Generlized weakness	Anemia, hypo,hyper thyrodiism, DM
13	Bleeding problem	
14	Pancytopenia	
15	lymphadenopathy	
16	Weakness	hemiplegia, paraplegia, quadriplegia
17	Joint pains	
18	Skin discolouration	
19	Diabetes Mellitus	
20	Hypertension	

SHORT CASES TOPICS LIST

Serial	Unit	Topic	Details
1	GPE	Anemia	
		Bruises & petechiae	
2		Pancytopenia	
3		Jaundice	
4		Pedal Edema	
5		Anasarca	
6		Generlsied Lymphadenopathy	
7		Cushing Syndrome	
8		Ulcer ; venous vs arterial	
9	Pulmo	Pleural Effusion	
10		Lung Collpase	
11		Consolidation	
12		ILD	
13		Pneumothorax	
14		SVC Obstruction , Pancoast & CA Lung	
15		Asthma/COPD	
16	CVS	Valvular Heart Disease	
17		Constrictive pericarditis	
18		Atrial Fibrillation	
19		Absent pulse in a limb	
20		Primary Pulmonary HTN	
21	Abdomen	Hepatomegaly	
22		Hepatosplenomegaly	
23		Cirrhosis & Ascites	
24		Abdominal Mass	
25		Palpable Kidney	
26	Neurology	Hemiplegia	
27		Paraplegia	Cauda equina, conus medullaris, GBS,Cord lesion
28		Quadriparesis	MG.GBS,Polymyosistis, dermatomyositis
29		PICA	
30		MND	Bulbar vs pseudo bulbar
31		Sensory Neuropathy	
32		Sensorimotor Neuropathy	
33		Cerebellar Syndrome	
34		Loss of vision	
35		Ptosis	
36		Facial Nerve Palsy	
37		Other cranial nerves	
38		Proximal Myopathy	
39		Parkinson Disease; Tremors	
40		Gait Disorder	Fredrich Ataxia
41		↑Plantar with absent ankle reflex	
42		Movement disorder ; chorea	
43	Rheumatology	SLE	
44		RA	
45		Ankylosing spondylitis	
46		painful knee joint	
47		Scleroderma	
48	ENDO	Diabetes mellitus	
49		Hypothyrodism	
50		Hyperthyroidism	
51		Acromegaly	
52		Cushing's syndrome	
53		Addison Disease	
54	Fundus	Dibaetic Retinopathy	
55		HTN Retinopathy	

Books to Study

	Major Book	Accessory Books	
Long Case	CMDT	Harrison Davidson Oxford Handbook of Medicine ABM Abdullah Long Cases CECIL Washington Manual	Guidelines Notes (Dr. Hina,Shahid,Zaman) Ryder Mir Tim Hall Pocket Book for PACES Gotam Mehta
Short Cases	ABM Abdullah Short Cases	250 Cases in Clinical Medicine Hutchison/macleod/Nicholas telli Fuller Neurology exam MSK Examination	
Others		CPSP Assessment form	

Hemoptysis

Etiology

Pulmonary Causes	
Airway diseases	Airway trauma
	Bronchitis: Acute or chronic
	Bronchiectasis*, including cystic fibrosis
	Bullous emphysema
	Bronchogenic carcinoma*
Pulmonary parenchymal diseases	Pneumonia
	Lung abscess
	Mycetoma and other fungal infections
	Necrotizing pneumonia
	Parasitic (eg, *Paragonimus westermani**)
	Tuberculous* and nontuberculous mycobacterial disease
MSK,CTD, Vasculitis	Goodpasture
	Wegner's
	APS
	SLE
	Amyloidosis
Pulmonary vascular diseases	
	Congenital heart disease
	Heart failure
	Mitral stenosis
	Tricuspid endocarditis
	Pulmonary embolism (eg, fat, septic, thrombotic)
	Heart failure
Disorders of Coagulations	
	Anticoagulant and antiplatelet medications
	Disseminated intravascular coagulation (DIC)
	Leptospirosis
	Platelet dysfunction
	Thrombocytopenia (ITP, TTP, HUS)
	von Willebrand disease
Miscellaenous	Iatrogenic injuries

APPROACH TO SOB

Differential Diagnosis of Acute Dyspnea for the First Time	
Respiratory Causes	1. Foreign Body 2. Pneumothorax 3. Acute Asthma (previous undiagnosed asthma can present first time with status) 4. Acute Exacerbation of COPD 5. Anaphylaxis 6. ABPA
Cardiac Causes	1. Acute Pulmonary Edema 2. Acute MI 3. Aortic dissection 4. Acute valvular insufficiency 5. Acute Pulmonary Embolism 6. Pericardial tamponade 7. Complete heart block
Chronic Dyspnea or Acute exacerbation of Chronic Dyspnoea	
Pulmonary Airway Disorders	1. COPD 2. Asthma 3. Cystic Fibrosis 4. Bronchiectasis
Parenchymal Disorders	1. ILD 2. CA Lungs 3. Mets
Pleural Causes	1. Effusion 2. Fibrosis 3. Mesothelioma , malignancy
Pulmonary Vascular Causes	1. Vasculitis 2. Pulm HTN 3. AVM
Cardiac	1. HF 2. Constrictive pericarditis
Anemia	1. Neuromuscular Disorders 2. Anemia

HOPI

Biodata:

Presenting Complaint: Ask its detail

Smoking status

Onset	
Duration	
Progression	1.
Description (Harrison)	Chest tightness or constriction: (Asthma, CHF) Increase work/effort for breathing: (Asthma, COPD, Neuromuscular disease)
Orthopnea	LVF, COPD, Br.asthma , Massive pleural effusion, Bil diaphragm palsy., Ascites GERD
PND	1. HF
Platypnea	Left atrial myxoma, Massive pulm. Embolism , Pulm. AV fistula , Paralysis of intercostal .muscles , Hepato pulmonary syn.
Trepopnea	Disease Of One Lung /Bronchus e.g. massve effusion
Timing:	**Nocturnal :** CHF, COPD, BRONCHIAL ASTHMA, SLEEP APNOEA, PND, NOCTURNAL ASP. IN GERD
Post prandial	1. GERD 2. ASPIRATION 3. FOOD ALLERGY
MMRC Scale	0. Not troubled by breathlessness with strenuous exercise. 1. Shortness of breath when hurrying or walking up a slight hill. 2. has to stop for breath when walking at own pace. 3. Stops for breath after walking about 100m or after a few min. 4. Too breathless to leave the house or breathless when dressing or undressing
Aggravating Factors	Asthma : dust, cigarette smoke, allergens, exercise, Beta Blockers, NSAIDs, cold weather HF: Ppt factors of HF
Exertional dyspnea relieved on stopping	Immediately : pulmonary causes Slowly: cardiac causes
Relieving Factors	Rest Medications : inhaler, nebulizer, syrup,tablets (deltacortil, diuretics)
What were you doing before and at the time of onset of dyspnea?	Eating, Exercise
Difficulty in moving air	Into the lungs : upper airway obstruction Out of the lung: lower airway disease Both in & out: obstructive disease
If intermittent/ paroxysmal	Asthma , recurrent pulmonary emboli, cardiac ischemia How many episodes per week/month/year? Hospital visits? Admissions?
Associated Cough?	Dry: ILD Productive : others, asthma improves after coughing up sputum Pattern : normal, bovine
Sputum: FVCC color, amount, easy to expectorate,	Serous : Normal .. clear Frothy : LVF , intermittent blood in it Mucoid: COPD, Asthma(thick with thread formation, difficult to exectorate)

amount of blood (streaking to frank)	Mucopurulent or Purulent: Pyogenic infections Rusty : pneumococcal pneumonia in resolving phase Green : Pseudomonas in lung abscess, bronchiectasis Brick red: klebsiella Black : coal miner lung
Hemoptysis	Streaks of blood, blood tinged, frank blood Massive hemoptysis :>200-600ml/24 hours
Associated features	
Asthma 1-4 None = Well controlled 1-2 = partially controlled 3-4 = uncontrolled	Continuous with paroxysmal episode , Associated with wheezing , worse at night , cough with scanty tenacious sputum which is difficult to expectorate , seasonal variation, … only cough in cough variant asthma **aggravated by** exposure to dust, cigarette smoke, allergens, exercise, Beta Blockers, NSAIDs, cold weather, flue/respiratory infections, coughing,laughing, emotions ,worse at place of occupation, Nasal Congestion **Relieved by:** using inhaler (name), nebulizer with complete relief, coughing up thick scanty sputum (crushman spirals which are plugs) SOB is intermittent and patient has dyspnea free periods Nocturnal attack of dyspnea not relieved by sitting . h/o GERD If known case, were PFTs done? Has PEFR at home? Rsik Factors: Family Hx. H/O watery nasal discharge, flue, sneezing, skin lesions (atopic eczema), urticaria H/O >2 exacerbation requiring oral steroid in last 1 year Asthma Control Assessment over past 4 weeks: 1. Day time symptoms ….>2/week 2. Night time symptoms …. Any 3. Use of Ventolin > 2 /week 4. Any Limitation of activities 5. Use of more than 1 canister of Ventolin inhaler 6. PEFR variation >20% 7. FEV1
COPD	Risk Factors: 1. Known smoker 2. Alpha 1 Antitrypsin deficiency: dyspnea in early age, DCLD 3. Environmental tobacco smoke 4. Biomass fuel 5. Occupational exposure , has SOB , progressive , with cough, mucoid / mucopurulent sputum (detail), wheezing . dyspnea is persistent and never experices dyspnea free periods. Partially relieved by inhalers and leaning forward in sitting position Chronic bronchitis : chronic cough with copious suputum for 3 months for last 2 years , gets cyanosed , weight gain Cyanosis, pedal edema, ascites
ILD	Known coal worker, h/O progressive dyspnea of gradual onset with dry cough Risk Factors: Scleroderma (dysphagia, skin tightening) CTD profile,
Bronchiectasis	H/O copious amount of sputum production, foul smelling, sputum volume changes with posture (localized disease in opposite lung if lying on one side produces more sputum), sputum production is more in morning on waking up, Sputum on standing forms three layers i.e. foam,fluid,sediment **Risk Factors (Etiology) : CHAD PARSO** Cystic Fibrosis (upper lobe) Hypogammalglobulienmia (lower lobe) Alpha 1 Antitrypsin deficiency

	Deficient immunity (AIDS,CLD,CKD,Lymphoma, Lekuemia), Ciliary Dyskinesia (midlung field) Pneumonia (h/o TB, Fungal infection , Lung abscess) , MAC(Middle zone) ABPA (central) Radiation (upper lobe) , RA , Scleroerma (by aspiration..lower lobes), Sjogren Obstruction (foreign body, tumour … external compression from mass or lymph node) … Bronchoscopy ILD (lower lobes) , IBD Complications: 1. Hemoptysis 2. Cor pulmonale 3. Amyloidosis 4. Secondary visceral abscesses (brain abscess)
Pulmonary TB	**Risk factors :** household contact , jailed, malnourished, immunocompromised, Inc risk of reactivation: gastrectomy, silicosis ,CKD,Lymphoma,leukemia, (HIV,DM,Steroids TNF inhibitor) **Is it MDR:** Hx of contact with MDR/Failed Rx, failed previous Rx, non compliance
Lung Abscess	Similar to bronchiectasis with short duration, fever , weight loss, mucoid sputum in Bronchoalveolar Carcnoma
ABPA	Brown flecked sputum, hemoptysis,wheezing
Recurrent Pulmonary Thromboembolism	Associated with leg swelling, paroxysmal episodes superimposed on progressive course, may have hemoptysis due to lung infarction worsened after recent flight/long journey, operation causing bed rest
Neuromuscular Conditions	GBS, MG (Weakness of body)
Pneumonia	Cough, supuutm,fever Associated diarrhea in atypical (legionella, mycoplasma)
Cystic Fibrosis	
Pleural Effusion	
Pulm HTN	Shortness of breath and wheezing after walking 50 to 100 feet, (Due to increase in PCWP)
CA Lung	Frank blood
Mesothelioma	
Pelural Fibrosis	
HF	Frothy white/ sputum with pink tinge, chest apin
Vasculitis	
Carcinoid	Diarrhea, flushing,wheezing
Pneumothorax	Sudden pain followed by SOB
Hyperventilation	Tension in home , SOB , Circumoral numbness, stridor, fits
Personal Antecedents	Blood tests, CXR,HRCT,Bronchoscopy,PFTs, urine exam
ADL	
Past History	Admissions, ER Visits, Radiotherapy, blood transfusion in last 7 days (TRALI) , Diabetes (prone to TB, Lung Abscess)
Family Hx	TB Contact, family hx of asthma
Drug ,Treatment,Allergy	
Personal	EAST ………. PCP in HIV, Septic pulmonary emobolism from IE
Socioeconomic	Occupation : detailed , works in cotton mill, sugar cane mill, miner, TB Contact F Any pets,birds,pigeons (psitacossis) H…. overcrowding (TB) R

PHYSICAL EXAMINATION Scheme

GPE	
Look	Cachexia, respiratory distress (Severity : able to complete senetce before stopping) folley, NG, IV line
Vitals	
Pulse	Rate, Rhythm, bounding (CO2 Retention)
Brachial BP	Pulsus paradoxus: >10mmHg fall in Systolic BP during Inspiration (COPD,Asthma,Pericardial disease)
R.R.	
Axillary Temp	
Hands	
Hands	Pallor,cyanosis, clubbing, Hypertrophic Osteoarthropathy, wasting of dorsal muscles, Nicotine staining on fingers Wasting of muscles of hands (Pancoast) Palmar Erythema Flapping Tremors Stigmata of CLD
Arms	Bruises (DIC, Bone Marrow invasion) tattoo mark, Needle marks for IV Drug abuse, (HIV?HCV?) epitrochlear lymph nodes
Axilla	, Acanthosis, Hair loss in CLD
Face, Eyes, Mouth Neck	Facial puffiness (SVC) , Moon face(Hx of steroids), Ptosis,Enophtalmos, absent sweating Pallor, Jaundice, Redness, Miosis Herpes (immunocomromised) Nose : polyps Oral ulcers , poor hygiene, Uvula, check palatal reflex with tongue depresser, tongue (12th Nerve) Thyroid (from front & side) Sternal Tenderness
Legs	Ankle edema , skin lesions, tenderness
Perioral	
Neck	Cervical lymph nodes , posterior axillary L.N., Thyroid Sacral edema from back
Lymph Nodes	Axiallary,
Evidence of CTD, Vasculitis	
Examination from back of chest while patient sitting	
	Cervical L.N, Thyroid, Posterior Axillary, Sacral Edema Back of chest: Using accessory muscles, Supraclavicular retractions, tripod position
Lie the patient flat	
Chest	Trachea Apex Beat … If not palpable, check when at 45degree Front of chest +upper border of liver
GIT	Inguinal L.N. Abdominal exam : Paradoxical movement of abdomen i.e. inward motion during inspiration genital
CNS	Ask to raise arms & legs Lower Limb exam : bulk, tone, power, reflexes, plantars, …. Cord compression

	Upper Limbs: bulk, tone, power, reflexes, Sensory (Joint position , Pin prick) …. neuropathy Cerebellar Signs (Cerebellar degeneration)
Liet at 45 degree	
CVS	JVP Marantic endocarditis, IE , S3,S4
Sit up	
Cranial Nerves	Tracheal tug, FET 2nd,3rd,4th,6th,7th, Nystagmus Fundoscopy
Stand up	
Gait	Gait+Romberg+Gower sign GALS Postural Drop
Thank You	

INVESTIGATIONS

I would like to request a set of investigations for

1. Diagnosis
2. Management : physiologic & anatomic staging
3. Prognosis

CBC	Anemia Pancytopenia (bone marrow invasion)

	Leukocytosis (superadded infection) Thrombocytopenia (DIC)
LFTs	Bilirubin Serum Albumin Enzymes for therapy
Urine C/E	Proteinuria, hematuria
RFTs	GN , For therapy
ECG	
Pulse Oximetry	
ABGs	
IgE Level in Asthma	
PFTs before & 15 min after short acting bronchodilator	FEV1,FVC,FEV1/FVC >12% or 200 ml rise
Methacholine /histamine Challenge test	>20% fall
FeNO	Increased in asthma
Imaging	
CXR	
CT	Chest with contrast Chest, Abdomen & Pelvis with contrast
HRCT	
PET-CT	
Bronchoscopy	
Pleural Tap	Cytology, Biochemistry
ECHO	Pulmonary HTN is contraindication
Doppler USG Leg	D-Dimers, VQ Scan

APPROACH TO CA Lung

Biodata: usually Age>40

Presenting Complaint: Ask its detail

PC	%	DDx
Cough	8–75%	COPD, Asthma, Fungal Infection , ABPA, ILD, Cardiac Causes ,
Weight loss	0–68%	Carcinoma , TB, HIV, DM, Chronic disease
Dyspnea	3–60%	Cardiac causes , pulmonary causes
Chest pain	20–49%	Acute MI, Chest wall pain, GERD, Pericarditis, Pneumonia, Heart failure, Pulmonary embolism, aortic dissection
Hemoptysis	6–35%	**1. Non Pulmonary Causes:** nasopharyngeal bleeding , Gastrointestinal bleeding **2. Tracheobronchial source:** Neoplasm (bronchogenic carcinoma, endobronchial metastatic tumor, Kaposi's sarcoma, bronchial carcinoid) Bronchitis (acute or chronic), Bronchiectasis , Broncholithiasis, Airway trauma , Foreign body, **3. Pulmonary parenchymal source :** Lung abscess,Pneumonia, Tuberculosis, Mycetoma ("fungus ball") , Goodpasture's syndrome , Wegener's granulomatosis, Lupus pneumonitis, Long contusion **4. Primary vascular source :** Arteriovenous malformation, Pulmonary embolism, Elevated pulmonary venous pressure (especially mitral stenosis), Rare causes: Pulmonary endometriosis , Systemic coagulopathy or use of anticoagulants or thrombolytic agents , Idiopathic pulmonary hemosiderosis
Bone pain	6–25%	Fracture , Primary bone cancer, such as , osteosarcoma , Metastatic bone disease, Vitamin D deficiency leading to osteomalacia , Multiple myeloma , Paget's disease , Osteoporosis , TB of the bone, hyperparathyroidism, Iatrogenic, for example bisphosphonates can cause osteonecrosis of the jaw or prednisolone can cause vertebral fractures
Clubbing	0–20%	**Pulmonary Causes:** lung cancer, interstitial pulmonary fibrosis, lung abscess, pulmonary tuberculosis, pulmonary lymphoma, **Cardiovascular :** congestive heart failure, infective endocarditis, and cyanotic congenital heart disease **Extrathoracic:** . inflammatory bowel disease, liver cirrhosis, Lymphoma, and gastrointestinal neoplasms
Fever	0–20%	
Weakness	0–10%	
SVC obstruction	0–4%	CA Lung, Lymphoma, Thrombosis (Iatrogenic), Fibrosing mediastinitis (Histolpasma, TB), post radiation Fibrosis
Dysphagia (Esophageal Type)	0–2%	**1. Intraluminal Mechanical Causes:** Food Impaction A. Intrinsic : Benign tumors, Caustic esophagitis/stricture, Diverticula , CA Esophagus, Peptic stricture, Eosinophilic esophagitis, Infectious esophagitis, Pill esophagitis , Post surgery (laryngeal, esophageal, gastric) , Radiation esophagitis/stricture, Rings and webs , Lymphocytic esophagitis B. Extrinsic : Cervical osteophytes , Enlarged aorta , Enlarged left atrium , Mediastinal mass (lymphadenopathy, lung cancer, etc) , Postsurgery (laryngeal, spinal) **2. Motility disorders :** Achalasia , Chagas disease ,Primary motility disorders , Secondary motility disorders (Scleroderma, Sjogren) **3. Functional dysphagia**
Hoarseness of Voice		Vocal cord paralysis, Laryngeal papilloma, Growths on the larynx caused by human papilloma viral infection, Reflux laryngitis Causes of Vocal Cord Paralysis: surgery, radiation, Malignant invasion of either the vagus or recurrent laryngeal nerve (thyroid cancer, lung cancer, esophageal cancer, and metastases to the mediastinum)
Wheezing and stridor	0–2%	
Others		Non resolving pneumonia, Lung Abscess, Pleural Effusion

Causes of Wheezing

Extra thoracic upper airway obstruction	Intrathoracic upper airway obstruction	Lower airway obstruction
Postnasal drip syndrome	Tracheal stenosis	Asthma
Bilateral vocal cord paralysis	Foreign body aspiration	COPD
Cricoarytenoid arthritis	Malignancies	Pulmonary edema
Wegener's Granulomatosis	Intrathoracic goiter	ABPA
		Bronchiectasis
		Cystic fibrosis
		Parasitic infections
		Carcinoid syndrome
		Pulmonary embolism
		Lymphangitic carcinomatosis/ CA Lung

HOPI

Details of PC	SDO-ICRT-PARA
Associated Symptoms	Halitosis, Hoarseness, Cough , Sputum, Chest Pain, , Hemoptysis, Wheezing/Stridor Dyspnea, Chest Pain, Dysphagia, Constitutional Symtoms: Fever, Weight Loss , Weakness, Night Sweats Bone Pain, Clubbing SVC Obstruction
Due to Tumour itself	1. Lung collapse due to endobronchial tumour …. Leading to SOB 2. Wheezing, stridor, 3. Post obstructive pneumonitis 4. Invasion of pleura or chest : pain 5. Changing pattern of cough, bovine cough
Due to Regional Spread	1. SVC Obstruction …. Facial swelling, early morning headache 2. Hoarseness of voice due to recurrent laryngeal nerve palsy 3. Dysphagia 4. Horner’s syndrome (absent sweating on face, آنکھ کے چھپر /پپوٹے کا گرنا ، ایک آنکھ اندر کو محسوس تو نے ہوتی ، رات کو کم نظر آنا(loss of accomodation) 5. Pancoast Syndrome : shoulder pain raditing in ulnar distribution of in arm , weakness of hand muscles 6. Phrenic Nv Palsy : sob 7. Pericardial & cardiac extension : SOB, Arryhtmias (palpitations) 8. Lymphatic Obstruction : pleural effusion 9. Lymphangitic Spread: dyspnea 10. Transbronchial Spread with tumour growth along alveolar layer: SOB, Sputum production
Due to Distant Mets	1. Lymphadenopathy specially in neck 2. Jaundice, RHC pain, mass (Liver mets) 3. Bone pains 4. Backache, weakness of limbs .. paraparesis (mets>fracture) 5. Headache, Fits, ASOC, Hemiparesis 6. Pleural Effusion 7. Bone marrow invasion → Cytopenias 8. Postural hypotension (Adrenal Mets)
Paraneoplastic Ref: Harrison , 19th ed	1. Proximal myopathy (ACTH by small cell → Cushing’s) 2. Unconsciousness, Fits (SIADH → Hyponatremia) 3. Polydipsia, polyuria, bone pains , constipation (PTHrp in sq. cell →hypercalcemia) 4. Clubbing (NSCLC) 5. Hypertrophic Osteoarthropathy (Adeno ca) 6. Double Vision, Proximal weakness (Lambert Eaten in SCLC) 7. Retinal Blindness (SCLC) 8. Pins & needle in glove & stocking (SENSORI-MOTOR neuropathy) 9. Dysphagia (Achalasia like syndrome due to ANNA) 10. DVT (Migratory venous thrombophlebitis/Trosseau syndrome) 11. proximal myopathy, rash in neck, hands (Dermatomyositis/polymyositis) 12. Palpitations , fever, embolization (Marantic Endocarditis) 13. Ecchymosis (DIC) 14. Acanthosis Nigricans 15. , Frothy Urine , Hematuria(Nephrotic, GN) 16. Gynecomastia (Doe to estrogens in Large cell CA)
Etiology of CA	Smoker Second Hand smoke exposure Occupation (Asbestos, Coal worker)

	Chronic Scarring (TB, COPD) Radiations
Other Complications of Smoking	Has he COPD? Pulmonary HTN? Cor-pulmonale? Respiratory Failure? CA Lung … discussed Concomitant IHD
ADL	Eating, changing clothes, going to toilet, can do job work
Systemic Review	
Personal antecedents	**Workup so far :** CXR,USG,CT,Bronchoscopy & Biopsy, Pleural Tap (diagnostic or therapeutic), Bone Scan, Sputum exam , Lymph Node Biopsy **Treatment Given & Side Effects**: Name, compliance, beneficial or not , side effects, Steroids, Inhalers, Nebuliser, LTOT O2 Therapy, Chemotherapy, Radiotherapy
Past Hx	ER visits in previous years, how many , reasons (acute exacerbation) Previous admission in last year , Bood Tx, DM,HTN,IHD
Drug & Allergies	
Family hx	Family Hx of CA lung, other
Personal	EAST
Socioeconomic	OFAHR
Concerns	Want to ask any thing about disease?

PHYSICAL EXAMINATION Scheme

GPE	
Look	Cachexia, respiratory distress, folley, NG, IV line
Vitals	
Pulse	Rate, Rhythm, bounding (CO2 Retention)
Brachial BP	
R.R.	
Axillary Temp	
Hands	
Hands	Pallor, clubbing, Hypertrophic Osteoarthropathy, wasting of dorsal muscles, Nicotine staining on fingers Wasting of muscles of hands (Pancoast) Palmar Erythema Flapping Tremors
Arms	Bruises (DIC, Bone Marrow invasion) tattoo mark, Needle marks for IV Drug abuse, (HIV?HCV?) epitrochlear lymph nodes
Axilla	, Acanthosis, Hair loss in CLD
Face, Eyes, Mouth Neck	Facial puffiness (SVC) , Moon face(Hx of steroids), Ptosis,Enophtalmos, absent sweating Pallor, Jaundice, Redness, Miosis Herpes (immunocomromised) Oral ulcers , poor hygiene, Uvula, check palatal reflex with tongue depresser, tongue (12th Nerve) Thyroid (from front & side) Sternal Tenderness
Legs	Ankle edema , skin lesions, tenderness
Perioral	

Neck	Cervical lymph nodes , posterior axillary L.N., Thyroid Sacral edema from back
Lymph Nodes	Axiallary,
Examination from back of chest while patient sitting	
	Cervical L.N, Thyroid, Posterior Axillary, Sacral Edema Back of chest
Lie the patient flat	
Chest	Trachea Apex Beat … If not palpable, check when at 45degree Front of chest +upper border of liver
GIT	Inguinal L.N. Abdominal exam genital
CNS	Ask to raise arms & legs Lower Limb exam : bulk, tone, power, reflexes, plantars, …. Cord compression Upper Limbs: bulk, tone, power, reflexes, Sensory (Joint position , Pin prick) …. neuropathy Cerebellar Signs (Cerebellar degeneration)
Liet at 45 degree	
CVS	Marantic endocarditis
Sit up	
Cranial Nerves	2nd,3rd,4th,6th,7th, Nystagmus Fundoscopy
Stand up	
Gait	Gait+Romberg+Gower sign GALS Postural Drop
Thank You	

INVESTIGATIONS

I would like to request a set of investigations for

1. Diagnosis
2. Management : physiologic & anatomic staging
3. Prognosis

CBC	Anemia Pancytopenia (bone marrow invasion) Leukocytosis (superadded infection) Thrombocytopenia (DIC)
LFTs	Bilirubin Serum Albumin Enzymes for therapy
Urine C/E	Proteinuria, hematuria
RFTs	GN , For therapy
ECG	
Imaging	
CXR	
CT	Chest with contrast Chest, Abdomen & Pelvis with contrast
PET-CT	
Bronchoscopy	
MRI	Brain For mets Spine for cord compression For superior sulcus /Pancoast tumour
Radionuclide Bone Scan	
Tissue Diagnosis	
Sputum	cytology
Tumour Tissue	Tumour and Involved Lymph Nodes….Obtained by 1. Transbronchial biopsy 2. Transthoracic Biosy or FNAC 3. Endobronchial Ultrasound guided biopsy (EBUS-TBNA) 4. Mediastinoscopy Bronchial Brush, Wash,Lavage

Clinical palpable disease	Lymph Node biopsy Skin metastasis biopsy Mets bipsy from Liver etc
Immunohistochemistry :	Tumour markers +ve in SCLS but not in NSCLS: NCAM, Synaptophysin, CD56, Chromgranin Marker for Adeno CA: Thyroid Transcription Factor-1 (TTF-1) Marker for Squamous Cell CA: CD40 or CD63
Driver Mutation Status	PD-L1 EGFR ALK ROS1
Pleural Tap	Cytology, Biochemistry
Physiologic Staging	
PFTs	FEV1>2L required for pneumonectomy FEV1>1.5 L for lobectomy
Cardiopulmonary Reserve Testing	Estimate VO_{2Max} :
ABGs	Resting PCO2>45 mmHg is contraindication
ECHO	Pulmonary HTN is contraindication

Treatment of NSCLC

Stage	I	II	III Bulky	III Non Bulky	Stage IV
Surgery	Both I& II: Surgical Resection with Lymph Nodes Lobectomy Pneumonectomy: for central tumors If limited reserve: Wedge Resection		Yes after Neo-adjuvant chemotherapy	Surgery , then adjuvant chemotherapy	Or N2,N3 Nodes : NO
Radiotherapy	NO	NO	Yes, concurrent with chemo	±	For palliation
Chemotherapy	IA, IB<4cm: NO IB >4cm: yes	Yes Adjuvant	Yes	Yes	For palliation*
		Cisplatin+ Carboplatin+			Pain control, symptoms, resection of mets, stenting

Bulky : Dominant L.N >3cm in short axis

* : chemotherapy imporved survival ,quality of life, symptoms & is cost effective in stage IV (Harrison)

Follow up:

Contrast CT Chest x 6 month for 3 years then plain CT Chest afterwards

Initially Chemotherapy Options in NSCLC:

Non Squamous Histology : Cisplatin + Pemetrexed 4-6 cycle ,
Cisplatin+Paclitaxel

Carboplatin given in satge IV instead of cisplatin

Bevaciuzumab : added to doublet chemotherapy in stage IV in Non squamous

Squamous Histology: Cisplatin+ Gemcitabine

Maintenance Therapy in advanced NSCLS

1. Switch : after 4-6 cycle, switch to entirely different regimen …… Erlotinib , Bevacizumab
2. Continuation : platinum agent discontinued, other continued …..Pemetrexed

Recent Advances …. Targeted Therapy:

PD-L1 +VE ……. Pembrolizumab

EGFR +ve …. Erlotinib, gefitinib, Afatinib

ALK +ve ….. Cri-zotinib

ROS1 … Cri-zotinib

Treatment of Small Cell Lung Carcinoma

- Surgical Resection not recommended
- Chemotherapy: Cisplatin +Etoposide 4-6 cycles or Cisplatin +Irinotecan
- Relapse : Topotecan
- Radiotherapy: standard component …. Combined chemo-radiotherapy is given…. If not possible , given sequentially
- If metastatic, then radiotherapy only given for palliation
- Prophylactic Cranial Radiation : in all patients who have responded to therapy

Prognosis

NSCLS : 5 year survival

Stage I	>60%
Stage II	30-50%
Stage IIIA	15-30%
Stage IIIB	3-6%
Stage IV	2%

SCLC: Mean 2 Year survival

Limited Disease: 20-40%

Extensive Disease: 5%

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APPROACH TO CHEST PAIN

Differential Diagnosis:

System	Condition	Onset/Duration
Cardiopulmonary		
1. Cardiac	Myocardial ischemia	*Stable angina:* 2–10 min *Unstable angina:* Increasing pattern or at rest *Myocardial infarction:* Usually >30 min
	Pericarditis, Dressler Syndrome	Variable; hours to days; may be episodic
	Cardiac Tamponade	
	Myocarditis	
	Aortic Stenosis	
	Mitral Valve Prolapse	
2. Vascular	Acute aortic syndrome	Sudden onset of unrelenting pain
	Pulmonary embolism	Sudden onset
	Pulmonary hypertension	Variable; often exertional
	Aortic Aneurysm	
3. Pulmonary	Pneumonia, Empyema, Pleuritis	Variable
	Pneumothorax, hemothorax	Sudden onset
	Acute Chest Syndrome in sickle cell disease	
	Neoplasm	
	Familial Mediterranean fever.	
	Whipple's disease with associated pericarditis or Pleuritis	
Non-cardiopulmonary		
4. GIT	Esophageal reflux	10–60 min
	Esophageal spasm	2–30 min
	Boerhaave's syndrome (perforated esophagus)	
	Neoplasm of Esophagus/Stomach	
	Mallory Weis Syndrome	
	Foreign Body	
	Diverticula	
	Peptic ulcer	60–90 min after meals
	Hiatal Hernia	
	Referred pain from sub diaphragmatic GI structures. E.g. Gallbladder disease, Pancreatitis , Sub diaphragmatic abscess.	Prolonged
5. Neuro muscular & Skin	Costochondritis	Variable
	Cervical disk disease - cervical spondylosis.	Variable; may be sudden
	Trauma or Muscle strain	Usually constant
	Herpes zoster	Usually prolonged
	Occult Trauma, Rib Fracture (lytic bone lesions)	
	Texidor's twinge (precordial catch syndrome)	
	Mastitis	
	Fibromyalgia	
6. Mediastinal	Lymphoma, Thymoma	
7. Psychological	Somatization	Variable; may be fleeting or prolonged
	Anxiety/panic attack	Variable; may be fleeting or prolonged

Differential Diagnosis Based on Importance:

System	Immediately Life Threatening	Not Life Threatening
Cardiac	Myocardial ischemia: *Stable angina:* *Unstable angina:* *Myocardial infarction:*	Aortic Stenosis
	Pericarditis	Mitral Valve Prolapse
	Cardiac Tamponade	Dressler Syndrome
	Myocarditis	
Vascular	Acute aortic syndrome	Pulmonary hypertension
	Pulmonary embolism	Aortic Aneurysm
Pulmonary	Pneumothorax, hemothorax	Pneumonia, Empyema, Pleuritis
	Acute Chest Syndrome in sickle cell disease	Neoplasm
		Familial Mediterranean fever.
		Whipple's disease with associated pericarditis or Pleuritis
GIT	Boerhaave's syndrome (perforated esophagus)	Esophageal reflux
		Esophageal spasm
		Neoplasm of Esophagus/Stomach
		Foreign Body
		Mallory Weis Syndrome
		Diverticula
		Peptic ulcer
		Hiatal Hernia
		Referred pain from sub diaphragmatic GI structures. Gallbladder disease Pancreatitis Sub diaphragmatic abscess.
Neuro muscular & Skin		Costochondritis
		Cervical disk disease - cervical spondylosis.
		Trauma or Muscle strain
		Herpes zoster
		Occult Trauma, Rib Fracture (lytic bone lesions)
		Texidor's twinge (precordial catch syndrome)
		Mastitis
		Fibromyalgia
Mediastinal		Lymphoma, Thymoma
Psychological		Somatization
		Anxiety/panic attack

	Heart Failure Etiology		
1	Myocardial Dysfunction	Loss Of Myocytes	MI
		In Coordinate Contraction	left bundle-branch block,
		Reduced Contractile Force	Cardiomyopathy
		Disorientation Of Cells	hypertrophic cardiomyopathy
2	External Work Load		Hypertension Aortic Stenosis
3	Valvular Disease		MR, AR
4	Arrhythmias		Tachycardia, A.fib
5	Pericardial abnormality		Pericarditis Tamponade
6	Congenital Heart Disease		
7	Dilated Cardio-myopathy	Toxins	Alcoholic Cocaine
		Endocrine	Hyper/hypo thyroidism Diabetes Mellitus Cushing Syndrome Pheochromocytoma
		CTD	SLE RA Scleroderma Dermatomyositis Giant Cell Arteritis , Vasculitis(CSS)
		Infections	TB, HIV,Hepatitis, Typhoid,Syphilis
		Depostion	Hemochromatosis Amyloidosis
		Nutritional Deficiency	Thaimine Silenium
		Congenital	Myotonic dystrophy Friedreich's ataxia ARVD
		Pregnancy	Peripartum cardiomyopathy
	Restrictive Cardimyopathy		Amyoidosis AL Scleroderma Radiation Anthracyclines

Precipitating Causes of Worsening Heart Failure	
Non-compliance to Diet	
Non-Compliance to Drugs	
Ischemic	
Negative Inotropes	Beta Blockers, CCB (Diltiazem, Verapamil)
NSAIDS	
Alcohol	
Myocarditis	
Anemia	
Hypoxia	
Infection	
Pulmonary Embolism	
Worsened valvular dysfunction	
Arrhythmias	
Myocarditis	

Approach to HF

Case : K/C of HF , now presented with Acute Pulmonary Edema

Biodata:

Presenting Complaint:

Worsening SOB – 5 days

HOPI

K/C	DM,HTN,K/C IHD/CCF/VHD , Smoker	
Was in USOH	Duration?	
Onset	Gradual	
Features of LVF	Progression: Initially exaggerated on exertion, now even on rest	On climbing stairs, On walking, briskly, On walking at level at normal pace, On performing routine daily activities
	Orthopnea	How many pillows?
	PND	
	Nocturnal cough	Specially
Right HF - EDEMA	Ankle edema / Generalized Edema	ایک ٹانگپر یا دونوں پر ؟ شام کے وقت پاؤں پر سوج آ جاتی ہو/ زیادہ ہو جاتی ہو ؟ شام کو جوتا پہننے میں مشکل ہوتی ہو ؟ جوتا پہننے سے پاؤں پر نشان / ٹویہ سا پڑ جاتا ہو ؟ سوج کہاں تک آگئی ہے ؟ گھٹنوں تک ؟ نلوں تک ؟ پیٹ پھول رہا ہے ؟ انگلیوں میں انگوٹھی پہننے میں مشکل ؟ زیادہ ٹائٹ ہو گئی ہو ؟ آنکھوں کے گرد سوج ؟ گردن کی نالیاں / ناڑیں پھول جاتی ہیں ؟ وزن بڑھ گیا ہو ؟
Other features of Right HF	Loss of appetite Nausea Pain right hypochondrium Jaundice	
Rule out pulmonary causes	Long standing Cough , sputum , wheezing with seasonal variation , allergy to polens, dust, smoke, hemoptysis, weight loss (CA), Hx of TB , TB Contact, high risk professions	

	for occupational lung disease , preceding trauma	
Rule out renal causes	Oliguria , hematuria, Itching, fits or loss of consciousness	
Drugs	CCB	
Precipitating Factors of Worsening HF		
	Non-compliance to Diet	High salt intake?
	Non-Compliance to Drugs	
	Ischemic	Chest pain … ischemic ?
	Arrhythmias	Palpitations?
	Anemia	Anemia symptoms
	Infection	Productive cough with yellow sputum, fever
	Drugs	NSAID ,CCB, BB
	Alcohol	
	Myocarditis	Flue ? fever? Cough? Joint pains?
	IV Fluids?	Any drip from local dr ?
	Thyroid disease	Heat intolerance ? sweating? Diarrhea?
	Pulmonary Embolism	Leg swelling? After a recent flight?
	Worsened valvular dysfunction	Recurrence of RF? IE ?
	Pregnancy	
Etiology of HF		
Ischemic Cardiomyopathy	IHD & Risk Factors of Coronary Heart Disease	History of chest pain, DM,HTN, Dyslipidemia, Obesity , sedentary life style, Premature IHD in family male<55, female<65
Valvular Heart Disease		Palpitations ? any h/o fever with joint pains in childhood? H/O monthly IM Injection for RHD , Any congenital heart disease? Problems in childhood?
Dilated Cardiomyopathy	Vasculitis,CTD Hemochromatosis Amyloidosis Radiation Exposure Thyroid,DM, Pheochromocytoma Anthracyclines Infectious myocarditis in past	Change in color of skin, jaundice, joint pain Frothy urine , increase in size of tongue, Risk factors Chemotherapy
Activities of Daily Living		
Systemic Review		
Past hx, Drug, Allergy	DM,HTN,IHD….Blood tx Treatemtns? Tests done so far?	Name of drugs? Side effects? Echo? Angio?Stent? Bypass?
FH		
Personal	EAST	
Socioeconomic	OFAHR	Stairs in home? Ability to cope?

Description

My patient was in his USOH 5 days ago when he developed SOB , gradual in onset ,progressive , initially on climbing stairs , worsened gradullay and he became dyspenic at rest 2 hours before coming to hospital.

This shortness of breath was associated with orthopnea , PND, Noctural cough.

This was also associated with generalized body swelling , initially involving both legs and then ascended upwards manifesting as periorbital puffiness and abdominal distension alongwith distension of neck veins, weight gain , nausea, anorexia, pain RHC & Jaundice.

There is no H/O pleuritic chest pain , long standing cough, productive cough, hemoptysis, wheezing, seasonal variations or allergy to dust,smoke,polens , any use of nebulizers for SOB. No H/O TB or TB contact , No H/O high risk professions for occupational lung disease

There is no H/O oliguria, hematuria, itching , fits or loss of consciousness

This shortness of breath was associated with chest pain felt as tightness , central , radiationg to left arm with sweating. He is non complaint to medications and diet.

He is a K/C of DM , HTN, with Coronary heart disease with CABG.

No H/O palpitations , valvular disease , arthritis with fever in childhood or H.O monthly IM injections

No H/O exposure to radiations or chemotherapy, vasculitis , rheumatic & connective tissue profile is unremarkable

No H/O heat or cold intolerance

No H.O frothy urine

No other significant past medical or surgical history.

Mother died of IHD

He is graduate (E), 30 pack years smoker, non alcoholic, denies high risk behaviours for HIV (AST)

He is the sole earning member of family of 8 , living in rented house on first flood with adequate hygienic conditions and hardly makes both ends meet. He enjoys good psychosocial support.

He has no clue about the diagnosis , prognosis and further management options of the disease and is eager to know about it. He is facing financial conerns because of absence from work due to disease

Approach to Diagnosed patient of Hypertension

HISTORY TAKING

1. Biodata:

1.1. Name	religion to ask question about alcoholism etc
1.2.Age	age is non modifiable cardiovascular risk factoR ♂ > 55 years, ♀ > 65 years
1.3.Gender	Male gender is a non modifiable cardiovascular risk factor
1.4.Resident of	ethnicity , Difference in blacks and whites
1.5. Name	religion to ask question about alcoholism etc

2. Mode of Onset and Evolution

2.1.At what high blood pressure was first observed ?	Before age 35 years ………. Secondary hypertension , glomerulonephritis Between age 35 years to 55 years …… Essential Hypertension After age 55 years …………….Secondary Hypertension , renovascular cause due to atherosclerosis
2.2. How was your blood pressure detected ?	➢ Was asymptoamtic , during routine examination ➢ Any evidence of target organ damage since diagnosis?
2.3.What was the highest level of your elevated blood pressure?	to choose therapy
2.4. Has your blood pressure recently increased over previous high levels ? if so , how much ? …….	Accelarted phase hypertension ?

2.5. Frequent micturition during night?	Diabetes ? high diastolic BP?
2.6. Occipital Headache while waking in morning	High diastolic BP

3. Assessment of Life style factors

3.1. What is your daily salt intake ? Do you use added salt	Does the patient need salt restriction
3.2. Has your weight recently increased ? if obese , did you tried to loose weight to control hypertension?	
3.3. Do you exercise regularly ? type , duration , on how much days of week	does the patient need exercise programme?
3.4. Do you consume alcohol ? if so how much ?	Does the patient needs to cut down alcohol use?
3.5. Dietray Habits Do you use vegetables and fruits ? How much is your fat intake ? Do you use oil or ghee ?	DASH Diet Saturdated fat ?

4. Aggravating Factors :

4.1. Use of any drugs for pain	NSAIDS ?
4.2. Contraceptives use in females	
4.3. Use of hakeem medications/kushtas?	Steroids
4.4. Are you pregnant (in females) ?	Pregnancy induced / pre-ecclampsia

5. Target Organ Damage / Complications ?

5.1. Did you ever developed weakness of any part , difficulty speaking?	TIA /Stroke?
5.2. Did you ever developed sever headache , ASOC with high BP ?	Hypertensive encephalopathy
5.3. Blurred vision ? decrease in vision?	Hypertensive retinopathy , central retinal vein occlusion
5.4. Chest pain	Angina
5.5. Shortness of breath on exertion , swelling of feet/ankle , orthopnea , PND	Heart failure
5.6. Do you have painful micturition ? blood in urine ? frothy urine?	CKD
5.7. Pain in the calves while walking	Intermittent claudication?

6. Questions about Etiology Secondary Causes:

Suspect in

- Young age (< 30 years, esp. if no FH and Caucasian).
- Sudden-onset hypertension.
- Presents as malignant hypertension (b p. 518).
- Acute rise with previously stable BP control.
- Severe or ‘resistant’ (≥ 3 drugs) hypertension.
- Other diagnostic clues

Renal Causes	
6.1. Do you have renal problem/renal failure?Since how long ?	CKD leading to Hypertension?
6.2. Does any other family member has hypertension ?	Essential , polycystic kidney disease
6.3.	Renal Vascualr disease
Endocrine Causes	

6.4. Increased height , size of hands and feet, blurred vision?	Acromegaly
6.5. Heat intolerance , palpitation , sweating, swelling in neck	Thyrotoxicosis
6.6. Cold intolerance , constipation , change in skin smoothness and voice	Primary Hypothyroidism
6.7. Pain abdomen , pain in flank , abnormal behaviour , bone pains	Hyperparathyroidism
6.8. Episodic headache , high BP , tachycardia , perpiration , impending doom, Dizziness on standing , pallor, tremors	Pheochromocytoma
6.9. Moon facies , abdominal striae	Cushing's syndrome
6.10. Muslce cramps , polyuria ,	Conn's Syndrome
6.11.	Glucocorticoid suppresable hyperaldosteronism
6.12.	Congenital Adrenal Hyperplasia due to 11-β-Hydroxylase or 17-α-Hydroxylase
6.13.	11-β-Hydroxysteroid Dehydrogenase deficiency
6.14. Do you use OCPs, NSAIDS,Steroids,Cyclosporin ,Nasal decongestants	Drug induced
6.15.	Coarctation of aorta
6.16. H/O Snoring , day time sleep, H/O accident	Sleep Apnoea
6.17.	

7. Other Cardiovascular Risk Factors:

Diabetes Mellitus?

Smoking
Previous cardiovascular event i.e. stroke ? heart attack?
Chronic Kidney disease
Premature death due to cardiovascular event

8. Any other condition which may affect the choice of therapy?

8.1.Gout?	Avoid Thiazide
8.2.Heart beat problem ?	Heart block… Avoid BB
8.3.Swelling of feet/legs	Avoid CCB
8.4.If old age, H/O forgetfullness	Dementia …targets different

9. Drug History?

Are you using same drug since you were diagnosed?	
Which drug are you taking?	
Dosage , frequency, compliance	
Following diet instructions	
Is hypertension not controlled despite 3 drugs including a diuretic?	Resistant
How often you monitor your BP?	

10.Family History:

Family hx of hypertension, stroke, diabetes, lipids, renal disease	
Family history of premature CV disease (♂ < 55 years, ♀ < 65 years).	CV risk factor

11.Gynecological / Obstetric History:

Previous History of high BP in pregnanyc or ecclampsia/pre ecclampsia	

12.Personal History:

Do you smoke?	
Do you drink?	
Cocain , amphetamine abuse	

13. Previous Workup:

Did you ever get an ECG CXR Echocardiography Eye examination Urine examination	Ask if any abnormality was told to him

14.

Physical Examination

GPE	
Pulse	Lost in atherosclerosis , takayasu,aortic dissection

Radio femoral delay	Coarctation of aorta
Blood Pressure in both arms	
Postural Drop	
Osler’s Sign in old patient: inflat cuff above systolic BP then palpate brachial or radial artery	+ve due to sclerosis
Pedal Edema	Heart Failure
CVS	
Heaving apex beat	LVH
Aortic insufficiency	
Pre Systolic S4	
Respiratory System	
Basal Crepitations	Heart Failure
Abdomen	
Renal Bruit	
Palpable kidneys	APKD
Nervous System	
Evidence of stroke	
Fundoscopy	
Grade 1: Silver wiring	
Grade 2: 1+ AV Nipping	
Grade 3: 2+Flame shaped hemorrhages, cotton wool spots	
Grade 4: papiloedema	

Investigations

Routine

Hemoglobin & Hematocrit	Polycythemia , anemia
Serum Creatinine	
Serum Electrolytes	
Fasting BSL	
Lipid Profile	
Serum Uric Acid	Also increased in metabolic syndrome, Avoid thiazide
Serum calcium	hyperparathyrodism
Urine C/E	
Chest xray ECG	
Special tests	
Echocardiography	
ABGs for Bicarbonate	Metabolic Alkalosis in Conn's syndrome
Thyroid function Tests	
Ferritin	Haemochromatosis
ESR and CRP.	
Plasma renin and aldosterone	
Plasma and urine metanephrines	
24h urinary sodium.	

Infective Endocarditis

PC:

Fever / night sweats,. Fatigue , Weight loss , chest pain

HOPI:

ODPARA	Fever which does not settle even after 4 days of treatment
Symptoms	
CNS	Weakness of any part of body , stroke, loss of vision (Artery occlusion), spots in vision (roth)
Resp	Cough , hemoptysis, fever (septic emboli to lungs)
CVS	Palpitatios, pain in legs on walking , color change in acral parts SOB , orthopnea ,PND (HF) engorged neck veins, Pain RHC, Abdominal distension, pedal edema (Right HF)
GIT	Pain LHC (Splenic infarct, abscess) Loin pain, hematuria (Kidney)
MSK	Bone pains (osteomyelitis)
Skin	Rash, petechiae, splinter hemorrhages in nail
Etiology of Infective Endocarditis / Risk Factors	
K/C	valvular heart disease congenital or acquired , Monthly IM injection , Valve repair or replacement , Heart surgery
Previous Hx of IE	Admitted in hospital with similar complaints and treated with IV meds for 4 weeks?
Catheters	CV line, double lumen , IV Cannula in neck
IV Drug abuser	
Procedures	Dental procedures, any surgery (tonsillectomy, bronchoscopy, abdominopelvic surgery, cystoscopy) Dialysis ..? access?
SLE	Features.. SBE
ADL	
Investigations	Echo (TTE,TEE) , Blood tests in bottles , how many
Rx	IV meds, side effects, Any allergy > specially to penicillin
Past Hx	
Family Hx	
Personal	EAST
Socioeconomic	OFAHR

APPROACH TO ANEMIA

Biodata:

Age of patient…. CA in old age, Blood loss in young,

Presenting Complaint:

Shortness of breath	**Anemia**	
	Cardiac	• CCF, • Pulmonary embolism, Pulmonary HTN, • Constrictive pericarditis, pericardial effusion • Left Atrial Myxoma (Playtypnea)
	Respiratory	• COPD, Asthma • Large pleural effusions • ILD, Occupational, Autoimmune • Portopulmonary HTN (Platypnea)
	Renal	• CRF
	Anxiety	•
Generalized Weakness, Easy Fatigability	Heart	CCF
	Lungs	COPD
	Renal	CKD
	Liver	CLD
	Connective Tissue dx	R.A.
	Endocrine-metabolic	Hypothyroidism, Diabetes mellitus Pituitary insufficiency Adrenal insufficiency
	Neoplastic/ hematologic	Malignancy Severe Anemia
	Infectious	Endocarditis Tuberculosis Mononucleosis Hepatitis Parasitic disease HIV infection Cytomegalovirus
	Sleep Disturbance	OSA
	Pharmacological	Sedatives, Hypnotics
	Psychological	Depression
	Idiopathic	Chronic Fatigue Syndrome

HOPI

ODPARA		
Cardiovascular	**SAD-OP^{4}D** Syncope, Angina, Dyspnea, Orthopnea, PND, Pedal edema, palpitations, pain in legs on walking (PVD)… PVD may manifest with anemia, Past Hx of DVT or PE	**Rule out causes of SOB other than anemia**
Left Atrial Myxoma, Portopulmonary HTN	Dyspnea on standing	
COPD, Asthma	Smoking, Wheezing, seasonal variation, allergy,	
ILD	Occupational Exposure Connective Tissue Diseases: patchy hair loss, dryness or redness of eyes, oral ulcers, photosensitivity, joint pains, frothy urine, hematuria	
Portopulmonary HTN	h/o HBV/HCV, Risk factors, complications of DCLD (UGIB, Ascites, LGIB, Enceph, Splenomegaly)	
CRF	H/O HTN, Periorbital puffiness, frothy urine, hemodialysis, If yes, etiology	
Already asked above: CCF, COPD, CLD, CKD, Connective Tissue,		**Rule out causes of GENERLIZED WEKANESS other than anemia**
Hypothyroidism	Lethargy, cold intolerance, weight gain, hoarseness, constipation, periorbital puffiness, Depression, Decreased libido , somnolence (increased sleepiness)	
DM	Polydipsia, polyuria, polyphagia, weight loss with normal/ increased appetite, Non healing wounds	
Pituitary insufficiency	Infertility,	
Adrenal insufficiency	Postural dizziness	
Malignancy	Marked Weight loss, lumps and bumps, dragging sensation in right & left Hypochondrium	
Infections	H/O TB : Productive cough , fever with evening rise , night sweats, anorexia, weight loss , H/O TB Contact, H/O ATT taken ever by patient or any contact H/O HIV : Risk factors … if positive , AIDS defining illnesses Risk factors of HBV/HCV already asked	
OSA	Snoring , day time sleepiness , H/O accidents,	
Pharmacological	H/O sedative , hypnotics , hakeem meds,	
Depression	**S**leep , **I**nterest deficit (anhedonia), **G**uilt (worthlessness), **E**nergy deficit, **C**oncentration deficit, **A**ppetite loss, Suicidal ideation	
Chronic fatigue syndrome	Fatigue does not improve after sleep even	

ANEMIA

Onset	Sudden: hemolysis or bleeding Gradual: Marrow failure, B12, iron	
Duration	During routine workup or consulted due to symptoms? Since childhood: اس تکلیف کے شروع ہونے سے پہلے کبھی آپ نے خون کا یا ہیموگلوبن کا ٹیسٹ کروایا تھا؟ وہ ٹھیک تھا؟ کیا کبھی خون دیا؟ یا دیئے گئے ہوں اور انہوں نے کم ہونے کی وجہ سے نہ لیا ہو؟	Thalassemia Time the onset of anemia
Progression	Is it continuous or Episodic & recurrent(Hemolysis more likely) ?	
Aggravating	By exertion, climbing stairs	
Relieving	None specific	
Associated Symptoms & severity of anemia	Easy fatigability, Paleness of complexion, Chest pain Pain in legs on walking shortness of breath on exertion (walking distance), Palpitations Tinnitus کانوں میں شائیں شائیں کی آواز Mild Headache Vertigo Dizziness Humming sound in your head Weakness of any part of body Loss of appetite, indigestion Poor physical performance Transfusions required? type?	Occult Dx may manifest with anemia Cerebral hypoxia due to marked anemia Rapid blood flow through cranial arteries in significant anemia Shunting of blood from splanchnic vasculature
Is it pancytopenia?	Any H/O recurrent fever Any H/O gum bleed, petechiae, ecchymosis?	
Activities of Daily Living	Are activates limited? Help needed?	

Etiology

Iron Deficiency	**Associated:** difficulty in swallowing (**Plummer-Vinson syndrome**) , Craving for Ice (PICA) , spooning if nails , brittle nails, smooth atrophic tongue, cheilosis,	Symptoms specific to B12 Deficiency
	Overt Bleed: Malena, hematemesis, hemoptysis, hematuria, menorrhagia, PV Bleed after menopause	Pulmonary hemosidrosis
	episodic long standing pain epigastrium which is relieved by antacids & foods …. H/O NSAIDs, Aspirin,	APD
	Diarrhea, constipation, weight loss, abdominal distension, wheat intolerance	CA Colon, TB, Celiac
	Decreased iron intake (meat) Multiple pregnancies,	
	Prolonged use of PPI , Gastric resection, jejunal bypass	↓ Fe Absorption
	Cola colored urine in early morning , Cardiac Valve replacement	hemoglobinuria, Valve hemolysis
	H/O Repeated donation of blood	
	Passage of worms with stool or vomiting	Worm infestation

Anemia of Chronic Disease	Joint Pains Diarrhea Kidney Disease Hepatitis Cold intolerance, sleepiness	RA IBD CKD CLD Hypothyroidism
Vitamin B12 Deficiency	Difficulty in seeing in evening, difficulty in balance, staggering gait Pins and needle sensations in acral parts optic atrophy leading to change in vision May be mild jaundice loss of memory, Burning sensation of tongue	Symptoms specific to B12 Deficiency Atrophic glossitis in B12 & Fe Deficiency
	H/O Abdominal surgery (gastrectomy, ileal resection, blind loop syndrome)	Etiology
	H/O Bloody diarrhea, oral ulcer of chron’s, vomiting: H/O Small bowel diarrhea	Crohns involving ileum
	long standing APD	H. Pylori infection
	strict vegetarian (B12 present in all foods of animal origin),	Dietary habits
	Pain abdomen, constipation	Fish tapeworm; *Diphyllobothrium latum*)
Folic Acid Deficiency	H/O avoidance of green leafy vegetables, Overcooked food pregnancy	Dietary deficiency
	Alcoholic	
	H/O chronic diarrhea after visiting tropical countries	(tropical sprue)
	H/O Drugs (Septran , anti convulsants ,	
	Rare: Concurrent B12 deficiency, Any chronic hemolytic anemia Exfoliative skin disease e.g. psoriasis Excess loss through Hemodialysis	
Aplastic Anemia (Other cell lines may be depressed sub clinically)	H/O radiations , Hakeem medications (metal salts), gold salts, phenytoin Chemotherapy Exposure to insecticides Any H/O recent jaundice , pain RHC PNH: Reddish-brown colored urine specially in morning Pain abdomen or RHC Any H/O ASOC, Focal deficit Painful skin nodules	Post viral Hepatitis **Thrombosis:** Mesenteric or hepatic vein Sagittal Vein Skin vessels

Hemolytic	**Yellow eyes** with or without change in colour of urine, without clay colored stools, pruritus change in colour of urine (intravascular hemolysis), H/O dragging sensation in LHC (Spleen) Pain in RHC (Gallstones) Leg ulcers	
Intrinsic (Intra corpuscular) Defects		
Etiology	Recurrent, episodic anemia	Membrane defects, enzymopathies
	Family History of hemolytic anemia: Thalassemia (Autosomal Recessive), Hereditary Spherocytosis (Autosomal dominant), SCA (AR), G6PD (XLR)	
	Reddish brown urine on waking Pain abdomen or RHC Any H/O ASOC, Focal deficit Painful skin nodules	PNH
	Refractory Leg ulcers	Sickle cell anemia(SCA) Hereditary spherocytosis(HS)
	H/O recurrent chest pain, backache Stroke due to thrombosis Gross hematuria (papillary necrosis) Blindness (retinal artery occlusion)	Crisis in Sickle cell
	H/O Drugs Allergy: Sulpha , Antimalarial (Primaquin)	G6PD Deficiency
Extrinsic (Extra corpuscular) Defects		
1. **Antibody Mediated Coombs Positive**		
A. Isohemagglutinn Mediated	H/O Blood transfusion	Transfusion reaction
B. Autoimmune		
i. WARM ANTIBODY AIHA (Caused by IgG Ab)	Idiopathic	50%
	Rash, joint pain (whole profile)	SLE, RA
	Lumps and bumps in body, dragging sensation in RHC or LHC	Lymphoma CLL Leukemia
	Backache, crush fractures	Myeloma
	Face swelling, cough, dysphagia	Thymoma
ii. COLD ANTIBODY AIHA (Caused by IgM Ab/ Compliment)	Idiopathic	**Acute Causes:** Mycoplasma Infectious Mononucleosis, CMV Mumps
	Cough, fever, rash سردی گرمی کا فرق ؟ سردیوں میں زیادہ ہو جاتا ہو ؟	
	Fever, sour throat, lumps and bumps	
	Parotid swelling	

	Lumps and bumps in body, dragging sensation in RHC or LHC	**Chronic Causes:** Due to Para proteins associated with CLL , Lymphoma , Waldenstorm Macroglobulinemia
iii. DRUG INDUCED	Ab against Rh antigen	Methyldopa
	Ab against RBC-Drug complex	Penicillin, Ceftriaxone, Cefotetan, Pipercillin
	Ab against “DRUG +Plasma protein” ... complex of 3 destroys RBC	Quinacrin
2. MICROANGIPATHIC HEMOLYTIC ANEMIA Coombs Negative		
	Preceding UTI or diarrhea, decreased urine output, ASOC, Fits, Petechiae or bleeding	TTP, HUS , DIC
	Cardiac valve surgery	Valve Hemolysis
	Marked weight loss, blood in stool, altered bowel habits	Metastatic Adenocarcinoma
	HTN	Malignant HTN
	HTN in pregnant female, petechiae,	HELLP
	H/O Snake bite	
	Also associated with SLE	
3. Infections		
	H/O Fever, rigors and chills	Sepsis, Malaria
	Sudden onset of severe pain at site of onset of trauma	Clostridium perfringens
		Babesiosis
4. Burn Injury		
5. Hyperplenism: any dragging sensation in LHC		
PAST HX	Surgery specially heart valves Transfusions done? Any Hx of transfusion reaction? if yes, type? (be careful in future transfusion) Admissions radiation	
FAMILY HX	of similar complaint i.e. hemolytic anemia jaundice DM, HTN, IHD	HS (Autosomal dominant) SCA (AR) G6PD (XLR)
Drugs	Allergies. oral or IV	
Personal & Socioeconomic hx	ADL , alcohol , sexual	
Personal antecedents to Dx	CBC, LFTs, Bone Marrow, Blood Film , Retics, Treatment , Splenectomy , steroids , others response, compliance and side effects	Investigations done so far
Concerns		
He is facing	Financial concerns because of obvious reasons	
Other concerns are	About diagnosis, prognosis , treatment and about further plan of doctors regarding management.	

PHYSICAL EXAMINATION

GPE	
Look	A cachexic young male lying comfortably in bed(with generalized wasting) , IV line on left forearm Keep examining joints and skin during GPE
Pulse	Rate, Rhythm, collapsing (hyperdyanmic due to anemia)
Brachial BP	BP , Postural Drop
R.R.	
Axillary Temp	
Nails	Koilonychia (Fe) , Clubbing (IBD, Lymphoma,)
Hands	Warm, moist, pallor , skin tightness , skin turgor
Arms	Bruises, tattoo mark (HIV?) , Needle marks for IV Drug abuse, epitrochlear lymph nodes
Axilla	Axillary L.N. ,
Face	Periorbital puffiness (R° Renal) , butterfly rash , moon shape Parotid enlargement (Alcoholism) Chvostek **sign**
Eyes	Pallor, Jaundice, Redness, Thyroid signs (staring look , exophthalmos , lid lag, lid retraction)
Perioral	Cheilosis (dry, cracking, ulcerated lips), angular stomatitis, Riboflavin, pyridoxine, niacin
Oral	ulcers, hygiene, gum hypertrophy, waldeir ring (lymphoma), **Tongue:** Atrophic lingual papillae (slick tongue) Glossitis (scarlet red, raw tongue; red beefy bald tongue,) Swollen, retracted, bleeding gums (if teeth present) tongue coating, dry tongue Gum Hypertrophy in AML M3
Neck	Cervical lymph nodes , posterior axillary L.N., Thyroid Sacral edema from back
Sternum	Sternal tenderness
Inguinal	Lymph nodes
Legs	Pedal edema , erythema nodosum, pyoderma gangrenosum, joints , Tenderness on anterior tibia Ulcers near medial maleolus
Skin	Any hyper or hypo pigmented lesion , brusises, rash ,
Bones & Joints	Rheumatoid hands … anemia of chronic disease

No obvious clinical evidence of connective tissue, rheumatic or vasculitic disease

GIT:

Liver , Spleen , Ascites , Lymph nodes , Enlarged kidney --- anemia in CKD

PR .. bleeding

Resp: wheezing , effusion, TB?

fine inspiratory crepts of Heart failure ppt by anemia…

CVS: Flow murmur, infective endocarditis

CNS:

Sensory: B12

Peripheral neuropathy (e.g., weakness, paraesthesias, ataxia, foot drop, and decreased tendon reflexes, fine tactile sense, vibratory sense, and position sense)

Romberg's sign

Delayed tendon reflexes in hypothyroidism

MSK : joints ; shober's

Fundoscopy : Roth spot in anemia

PR

Are there features to suggest underlying autonomic neuropathy or collagen-vascular disease in the pupils, orthostasis, skin, hands, or joints?

INVESTIGATIONS

CLASSIFICATION

Anemia

Classification of anemia by mean red blood cell volume (MCV).

Microcytic
Iron deficiency
Thalassemia
Anemia of chronic disease
Lead toxicity
Zinc deficiency
Macrocytic (Megaloblastic)
Vitamin B12 deficiency
Folate deficiency
DNA synthesis inhibitors
Macrocytic (Nonmegaloblastic)
Myelodysplasia
Liver disease
Reticulocytosis
Hypothyroidism
Bone marrow failure state (eg, aplastic anemia, marrow infiltrative disorder, etc)
Copper deficiency
Normocytic
Kidney disease
Non-thyroid endocrine gland failure
Copper deficiency
Mild form of most acquired microcytic or macrocytic etiologies of anemia

Classification of anemia by pathophysiology

Decreased red blood cell production (relative or absolute reticulocytopenia)

Hemoglobin synthesis lesion: iron deficiency, thalassemia, anemia of chronic disease, hypoerythropoietinemia
DNA synthesis lesion: megaloblastic anemia, DNA synthesis inhibitor drugs
Hematopoietic stem cell lesion: aplastic anemia, leukemia
Bone marrow infiltration: carcinoma, lymphoma, fibrosis, sarcoidosis, Gaucher disease, others
Immune-mediated inhibition: aplastic anemia, pure red cell aplasia

Increased red blood cell destruction or accelerated red blood cell loss (reticulocytosis)

Acute blood loss
Hemolysis (intrinsic)
Membrane lesion: hereditary spherocytosis, elliptocytosis
Hemoglobin lesion: sickle cell, unstable hemoglobin
Glycolysis abnormality: pyruvate kinase deficiency
Oxidation lesion: glucose-6-phosphate dehydrogenase deficiency
Hemolysis (extrinsic)
Immune: warm antibody, cold antibody
Microangiopathic: thrombotic thrombocytopenic purpura, hemolytic-uremic syndrome, mechanical cardiac valve, paravalvular leak
Infection: *Clostridium perfringens*, malaria
Hypersplenism

Causes of iron deficiency.
Deficient diet
Decreased absorption
Autoimmune gastritis
Celiac sprue
Helicobacter pylori gastritis
Hereditary iron-refractory iron deficiency anemia
Zinc deficiency
Increased requirements
Pregnancy
Lactation
Blood loss (chronic)
Gastrointestinal
Menstrual
Blood donation
Hemoglobinuria
Iron sequestration
Pulmonary hemosiderosis
Idiopathic

B12 deficiency
Dietary deficiency (rare)
Decreased production or neutralization of intrinsic factor
Pernicious anemia (autoimmune)
Gastrectomy
Helicobacter pylori infection
Competition for vitamin B_{12} in gut
Blind loop syndrome
Fish tapeworm (rare)
Pancreatic insufficiency
Decreased ileal absorption of vitamin B_{12}
Surgical resection
Crohn disease
Transcobalamin II deficiency (rare)

Dietary deficiency
Decreased absorption
Tropical sprue
Drugs: phenytoin, sulfasalazine, trimethoprim-sulfamethoxazole
Concurrent vitamin B_{12} deficiency
Increased requirement
Chronic hemolytic anemia
Pregnancy
Exfoliative skin disease
Excess loss: hemodialysis
Inhibition of reduction to active form
Methotrexate

Ascites/ Abdominal Distension

Causes of Abdominal Distension:

Fluid	Generalized	CCF, CRF, Protein loss from GI
	Localized .. only ascites	
Flatus	Intestinal obstruction	
Fat	Weight gain	
Fetus	Pregnancy	

Causes of Ascites:

System	**Common Causes**	**Uncommon Causes**
Portal Hypertension	Cirrhosis	
	Alcoholic Hepatitis	
	Acute Liver Failure	
	Budd Chiari Syndrome	
	Heart Failure (cardiac cirrhosis)	
	Constrictive pericarditis	
	Hemodialysis associated ascites	
Hypoalbuminemia	Nephrotic Syndrome	
	Protein loosing Enteropathy	
	Severe Malnutrition	
Peritoneal Disease	Malignant ascites : CA Ovary	
	Infections : TB	Brucellosis Whipple's disease
Other	Pancreatic ascites	Ovarian hyper stimulation syndrome SLE Abdominal pregnancy Endometriosis VP Shunt
	Myxedema	
	Hemoperitoneum	
	Urologic Peritoneum	
Hematologic		Lymphoma Leukemia Amyloidosis Extramedullary hematopoiesis Chronic Malaria (Hyperreactive malarial splenomegaly syndrome)

Approach

PC: Abdominal distension –

HOPI:

ODPARA	
Onset	Sudden : mass
Duration	
Progression	Persistent
Aggravated by	
Relieved by	diuretics
Is it organic?	Weight has increased? Low backache? Difficulty breathing?
Rule out Obstruction	Passing flatus , Recent constipation , vomiting
If female,	Any possibility of pregnancy?
Associated with fever?	
Associated with pain?	
Pedal edema	Before ascites (CCF) or after (CLD)
Diagnosis oriented questioning	
CLD	H/O Jaundice, hematemesis, malena, ASOC (Enceph) Easy brisibility Loss of libido, impotence, ammenhorrea If suspecting CLD, ask etiology Viral Hepatitis : risk fctors Hemochromatosis, Wilson's,Autoimmune, PBC Alcohol If confirmed , ask about other complications: SBP, Hepatorenal,hepatopulmonray
Budd Chiari	Painful mass RHC, Hypercoagulable state Hx
CRF/Nephrotic	Periorbital puffiness, Frothy urine, oliguria, polyuria, DM
CCF	Starting from feet, no H/O orthopnea, PND H/O valvular heart disease, neck veins prominent
Constrictive pericarditis	H/O fever, night sweats, past Hx of TB, TB Contact Chest pain , worse on lying, improves on sitting
Cor pulmonale	H/O lung disease (COPD/ILD)
TB	Fever, night sweats, TB contact, lymph nodes
Lymphoma	Lumps and bumps, liver,spleen
Abdominal Malignancy	HCC : HBV, Cirrhosis, jaundice, pain/mass RHC CA Colon: blood in stool
Metastatic Disease	Weight loss, anorexia, hemoptysis,bone pains

SLE	
Complications	
SBP	Fever, pain abdomen
Hernias	
Difficulty breathing	
Investigations done so far	
Treatment & side effects	

Lymphadenopathy

Enlargement of the lymph nodes that persists for at least three months in at least two extra inguinal sites is defined as persistent generalized lymphadenopathy

Etiology:

Infections	HIV,
	TB
	Infectious Mononucleosis
	Syphilis
	HBV Seroconversion
	Brucellosis (uncommon)
Hematological Malignancy	Lymphoma
	CLL
	Leukemia with Blast Crisis ???
	ALL
CTD	**SLE**
Drugs	Phenytoin Carbamazepine Allopurinol Atenolol Captopril
Inflammatory	Sarcoidosis
	Adult Still’s disease

Approach

PC: Lumps and bumps in the body

HOPI:

Detail of PC	
Onset	Sudden /Rapid…. EBV , Lymphoma Gradual …. TB, HIV
Duration	
Involved groups ?	Neck (Cervical) Axilla Inguinal Mass in abdomen
Progression	First involved which group Started contiguously (Hodgkin) or randomly
Lymph Nodes detail	Consistency? Are they tender? Are they discharging? (TB) Where is the largest one?
Extent	Liver : mass right hypochondrium Spleen Bone marrow: anemia , bleeding,purpura, Bruisibility , fever Cord compression : paraparesis
Associated Features	
General (B Symptoms)	Fever, weight loss, itching, fatigue
TB	Fever with evening rise, night sweats, Past Hx of TB, TB Contact
EBV	Sour throat, red eye
Secondary Syphilis	Sexual contact rash
HBV Seroconversion	Fever, nausea, vomiting, icterus
Lymphoma	B Symptoms Are you alcoholic? Are nodes painful after drinking any thing (Alcohol)?
CLL	Jaundice (AIHA)
Leukemia	Pancytopenia features, gum hypertrophy

HIV seroconversion	Travel abroad, sexual contact, IV drug abuse Flue, malaise
SLE	Alopecia, oral ulcer,joint pains, other features
Drugs	Anti epileptics or for neuropathic pain
Sarcoidosis	Dry cough, parotid enlargement, red eye Skin lesions (erythema nodosum)
Brucellosis	Joint pains, backache
Adult still disease	Rash , fever, joint pains
Investigations & Treatment	
Ix	Xray,USG,CT Lymph Node biopsy, bone marrow biopsy
Rx	Radiotherapy, side effects Chemotherapy , Side effects

APPROACH TO Gum Bleeding

Can be used for epistaxis, Purpura

<table>
<tr><th colspan="2">Differential Diagnosis of Gum Bleeding</th></tr>
<tr><th colspan="2">A. Structural causes</th></tr>
<tr><td colspan="2">i. Local trauma
ii. Gingival disease predisposing to bleeding</td></tr>
<tr><th colspan="2">B. Bleeding due to thrombocytopenia ….. Purpura is non palpable</th></tr>
<tr><td>Decreased production of platelets i.e. part of pancytopenia</td><td>1. Aplastic Anemia
2. Drugs (Phenytoin,Valproic acid, Diuretics e.g. thiazide, chemotherapy)
3. Bone Marrow Invasion : Malignany, TB, Lymphoma, Leukemia
4. Alcohol
5. B12 , Folate Deficiency
6. Radiation
7. Heavy Metals (Hakeem meds)
8. Exposure to insecticides
9. PNH</td></tr>
<tr><td>Increased Platelet Destruction</td><td>▯ **1)** Splenic sequestration
▯ **(2)** Autoimmune thrombocytopenia
• **(a)** ITP
• **(b)** HIV
• **(c)** Systemic lupus erythematosus (SLE),
• **(d)** Lymphoproliferative disorders
• **(e)** Medications
i. Anticoagulants: Heparin, HIT
ii. Antibacterial: Oral : Septran, Ampicillin
iii. IV : During Hospital admission e.g. TANZO, VANCO
iv. Pain killers: Panadol, Burden, Naproxen
v. Drugs for stomach: Omeprazole, Ranitidine, cimetidine
vi. Anti-malarial: Quinine
vii. Cardiovascular: Caopten, Atorva
▯ **(3)** DIC
▯ **(4)** TTP,HUS
▯ **(5)** Sepsis</td></tr>
<tr><td rowspan="2">Platelet Functional Defect</td><td>**Congenital**
(1) von Willebrand disease
(2) Other rare genetic abnormalities</td></tr>
<tr><td>**Acquired**</td></tr>
</table>

	(1) Medications, such as aspirin, nonsteroidal antiinflammatory drugs (NSAIDs) **(2)** Myeloproliferative disorders, such as essential thrombocythemia, polycythemia vera **(3)** Coating of platelets by abnormal proteins, such as in multiple myeloma and, occasionally, immune thrombocytopenia **(4)** Uremia
Other Causes of Non Palpable Purpura: 1. Corticosteroids 2. Scurvy	
C. Bleeding Due to Coagulation Disorders	
Congenital	Hemophilia A (the most common) Other clotting factor deficiencies
Acquired	a. Deficiency of a factor or factors **(1)** Liver disease **(2)** Vitamin K deficiency (nutritional or due to warfarin therapy) **(3)** Consumption of factors, eg, DIC **(4)** Dilution of factors, eg, massive transfusion
Causes of Palpable Purpura	
Vasculitis	• Polyarteritis nodosa • Rheumatoid arthritis • Wegener’s granulomatosis • Churg-Strauss syndrome • Henoch-Schönlein purpura • Systemic lupus erythematosus (SLE) • Hypersensitivity (leukocytoclastic) vasculitis
Infection or emboli	• Meningococcemia • Gonococcemia • Endocarditis • Rocky Mountain spotted fever • Aspergillus • Candidiasis • Ecthyma gangrenosum (neutropenic, pseudomonal)
Other	• Sarcoidosis • Cryoglobulinemia • Ulcerative colitis • Crohn’s disease • Medications

Approach

Petechiae – Petechiae are flat, red, discrete lesions that do not blanch under pressure; these often occur in dependent areas of the body (lower legs in ambulatory patients; sacral area in recumbent patients) (picture 1 and picture 2).

●**Purpura –** Purpura refers to a lesion caused by coalescence of petechiae. Purpura on the skin is sometimes referred to as "dry purpura"; this is not considered a predictor of more serious bleeding.

Hemorrhagic blisters in mucous membranes, such as the oral mucosa, are sometimes called "wet purpura"; this finding is more concerning as a predictor of more severe bleeding. New development of wet purpura should prompt reappraisal of the platelet count and the need for ITP therapy

Platelet Type Bleeding : occurs in skin , mucus membranes

Biodata:

Presenting Complaint:

HOPI

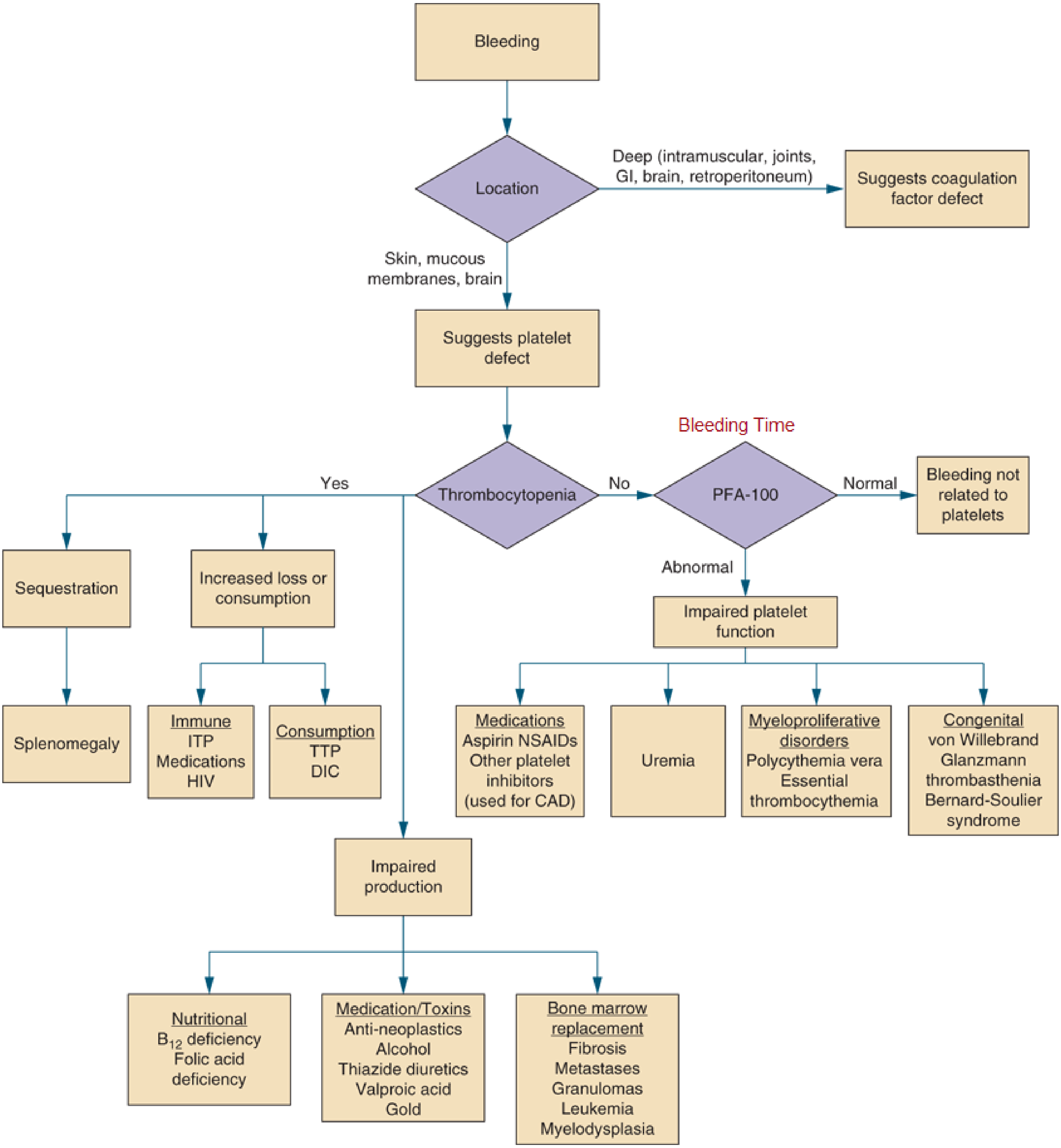
ODPARA	Onset Duration Progression **SEVERITY:** → Aggravating: by tooth brushing Relieved by: partially or completely? transamine ? ice?	spontaneous or on brushing, associated with symptoms of anemia, any need of blood transfusions
Rule out Local Causes	مسوڑھوں میں درد تو نہیں ہوتا ؟ دانت خراب تو نہیں رہتے ؟ صفائی کا خیال رکھتے ہیں ؟	His gums do not hurt He is timely with his dental care
Associated with	جسم پر کوئی سرخ نشان ، دانے ، دھبے یا زخم ؟ ہاتھ لگانے سے نشان محسوس ہوتے ہیں ؟ درد یا خارش ہوتی ہے ؟	Gum bleeding associated with red dots on legs which are raised, non-itchy and do not hurt. ***[rules out vasculitis…. If +ve, ask detailed vasculitis Hx]***
Bleeding from any other site	ناک سے ، چھوٹے بڑے پیشاب کے ساتھ ، کھانسی بلغم کے ساتھ یا الٹی کے ساتھ خون تو نہیں آیا ؟ پاخانہ کالے رنگ کا تو نہیں آ رہا آ؟ ماہواری زیادہ تو نہیں آئی؟	No H/O joint swelling or lump in any muscle or GI Bleed(Coagulation problem) No bleeding from any other site or heavy menstrual bleeding
Rule out DDx		

Pancytopenia	رنگ پہلے سے پیلا تو نہیں پڑ گیا ؟ کام کرتے ہوئے جلدی تھک جاتے ہیں ؟ چلتے ہوئے سانس چڑھتا ہے ؟ بخار تو نہیں ہوا ؟ منه میں چھالے ؟ کھانسی بلغم ؟ چھوٹا پیشاب جل سڑ کے تو نہیں آتا ؟	No h/o paleness of complexion , easy fatigability, exertional dyspnea, fever, cough, sputum or burning micturition ..Malaria,EBV [If +Ve , ask Hx of aplastic anemia & pancytopenia]
Drug induced platelet destruction?	اس مسئلے سے پہلے کسی قسم کی کوئی دوائی استعمال کی ؟ حکیم کی ، ہومیو پیتھی ؟ یا طاقت کی دوائی ؟	No H/O prescribed or unprescribed drugs intake
HCV	Shaving, Nose/Ear piercing, Blood Transfusion, Surgery, Comb,tooth brush	
HIV	IV drug abuse, travel abroad, illict sexual contact, Tatooing	Patient denies high risk behaviors for HIV
Lympho-Proliferative, EBV Hyperplenism	Lumps & bumps, liver, spleen	No lumps & bumps No dragging sensation in right or elft hypochondrium
Bone Marrow invasion by Malignancy	Significant documented weight loss with loss of appetite?	
Polycythemia, ET (Functional Defect)	Any H/O blurring of vision , itching on hand while take hot bath	
TMAs (TTP, HUS)	Fever, fits, oliguria	No H/O urinary complaints or fits
CKD,CLD	No H/O abd distension, pedal edema , periorbital puffiness, oliguria	
Scurvy	جسم پر بال جہاں سے نکلتے ہیں وہاں کوئی نشان بن گیا ہو ؟	
SLE	منه میں چھالے ؟ بال گچھوں کی صورت میں تو نہیں گرتے ؟ دھوب میں چہرہ لال ہو جاتا ہو ؟ جلن ہوتی ہو ؟ جوڑوں میں درد؟ ہاتھوں کی انگلیاں نیلی ہو جاتی ہوں ؟	Vasculitic , Rheumatic & Connective tissue profile is unremarkable HSP: pain abdomen , blood diarrrhoea
B12, folate	خوراک میں کوئی خاص پرہیز؟ مہینے میں گوشت کتنی دفعہ کھاتے ہیں ؟	He takes average diet without any special restriction
Systemic review	Rest of the systemic review if unremarkable	
PAST HX	Surgery ? Circumcison? Delivery? Transfusions done? Any Hx of transfusion reaction? if yes, type? (be careful in future transfusion) Admissions Radiation **No H/o pregnancy loss**	Any history of bleeding
FAMILY HX	of similar complaint	

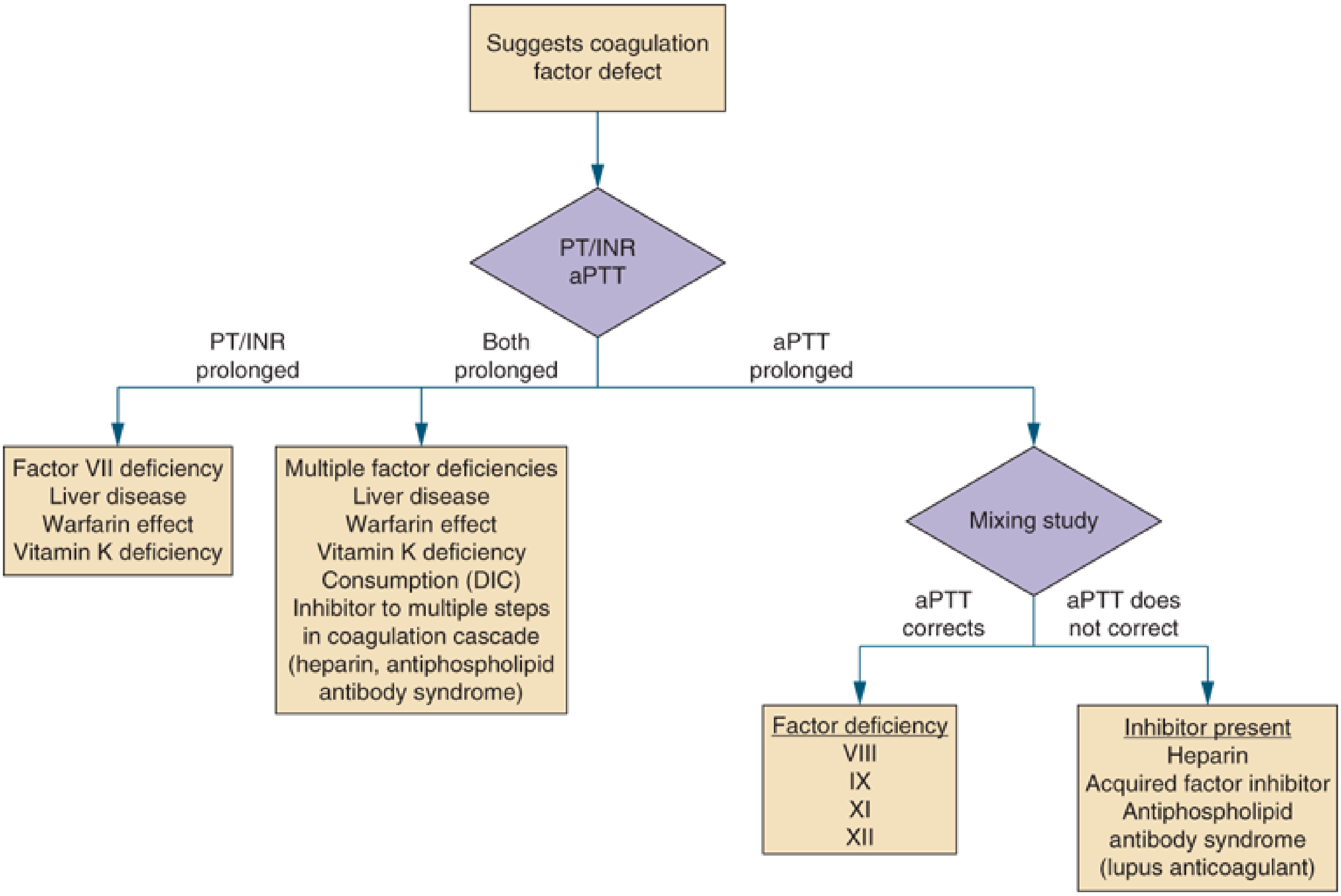
	jaundice DM, HTN, IHD	
Drugs	Allergies. oral or IV	
Personal & Socioeconomic hx	EAST , OFAHR	
Personal antecedents to Dx	CBC, LFTs, Bone Marrow, Blood Film , Retics, Treatment , Splenectomy , steroids , others response, compliance and side effects	
He is facing	Financial concerns because of obvious reasons	
Other concerns are	About diagnosis, prognosis , treatment and about further plan of doctors regarding management.	

EXAMINATION

Investigations


Bleeding
Location
Deep (intramuscular, joints, GI, brain, retroperitoneum)
Suggests coagulation factor defect
Skin, mucous membranes, brain
Suggests platelet defect
Bleeding Time
Thrombocytopenia
Yes
No
PFA-100
Normal
Bleeding not related to platelets
Abnormal
Impaired platelet function
Sequestration
Increased loss or consumption
Splenomegaly
Immune
ITP
Medications
HIV
Consumption
TTP
DIC
Medications
Aspirin NSAIDs
Other platelet inhibitors
(used for CAD)
Uremia
Myeloproliferative disorders
Polycythemia vera
Essential thrombocythemia
Congenital
von Willebrand
Glanzmann thrombasthenia
Bernard-Soulier syndrome
Impaired production
Nutritional
B12 deficiency
Folic acid deficiency
Medication/Toxins
Anti-neoplastics
Alcohol
Thiazide diuretics
Valproic acid
Gold
Bone marrow replacement
Fibrosis
Metastases
Granulomas
Leukemia
Myelodysplasia

...


Suggests coagulation factor defect
PT/INR aPTT
PT/INR prolonged
Both prolonged
aPTT prolonged
Factor VII deficiency
Liver disease
Warfarin effect
Vitamin K deficiency
Multiple factor deficiencies
Liver disease
Warfarin effect
Vitamin K deficiency
Consumption (DIC)
Inhibitor to multiple steps in coagulation cascade (heparin, antiphospholipid antibody syndrome)
Mixing study
aPTT corrects
aPTT does not correct
Factor deficiency
VIII
IX
XI
XII
Inhibitor present
Heparin
Acquired factor inhibitor
Antiphospholipid antibody syndrome (lupus anticoagulant)

aPTT, activated partial thromboplastin time; CAD, coronary artery disease; DIC, disseminated intravascular coagulation; GI, gastrointestinal; INR, international normalized ratio; ITP, idiopathic thrombocytopenia purpura; NSAIDs, nonsteroidal antiinflammatory drugs; PT, prothrombin time; TTP, thrombotic thrombocytopenic purpura.

Diagnosis is CLINICAL and exclusion

CBC	To confirm thrombocytopenia , its severity Pancytopenia Anemia , RBC Indices (B12, folate) Rule out platelet clumping (ie, pseudothrombocytopenia)
Peripheral Blood Smear	Shistocytes (TMAs), Spherocytes (AIHA with Ewan)
Reticulocyte count, Bone Marroq	If pancytopenia in CBC
ESR	Rule out malignancy , Vasculitis
Bleeding Time , PFA-100	
PT/APTT	
CXR	Lymph nodes
USG	Splenomegaly , L.N. , CLD , CKD
LDH, Biirubin with split	AIHA with Ewan
RFTs	HUS,TTP (TMas)
Antiplatlet Antibody Test	60% sensitivity for ITP
Anti HIV , Anti HCV	
Anti ds DNA, ANA	
Vitamin B 12 & Folate	
Testing needed for therapy	HbsAg , Anti HBc(Rituximab)

DVT

Approach

PC:

HOPI: ODPARA

Onset	
Duration	
Progression	
Aggravated by	
Relieved by	
Associated with	Swelling, warmth, pain … fever can be present
Is this patient at high risk for DVT?	
Recent surgery	Specially orthopedic
Bed bound	CVA, Other
Cancer	Marked weight loss, anorexia, known tumour
Stroke	
Obesity	
OCP/HRT	
Neohrotic syndrome	
Hyperocagulable state	Protein C , S , Antithrombin III defiency,
Heart failure	
IBD	
PNH	
ET, Polycythemia vera	
Rule out DDx	
Calf muscle pull or tear	An inciting injury may be identified in the history
Cellulitis	Warm, red, fever (fever can also be present in DVT)
Superficial thrombophlebitis	palpable, tender superficial veins
Venous valvular insufficiency	associated with varicose veins
Lymphedema	Chronic, history of pelvic surgery, malignancy, or radiation therapy
Popliteal (Baker's) cyst	knee pain, knee stiffness, swelling or a mass behind the knee (especially with the knee in extension), and by bruising around the ankle
Drug-induced edema or heart failure	ONLY IF UNDERLYING VENOUS PATHOLOGY
Complications	
Pulmonary embolism	
Extension	

Abdominal Pain
Causes of Upper Abdominal Pain

Pain RHC		
Biliary	Biliary colic	Intense, dull discomfort located in the RUQ or epigastrium. Generally lasts at least 30 minutes, plateauing within 1 hour.
	Acute Cholcystitis	Prolonged (>4 to 6 hours) RUQ or epigastric pain, fever. Patients will have abdominal guarding and Murphy's sign
	Acute cholangitis	Fever, jaundice, RUQ pain.
Hepatic	Acute hepatitis	Patients may also have jaundice, dark urine, and light-colored stools (cholesatatic)
	Perihepatitis	RUQ pain with a pleuritic component, pain is sometimes referred to the right shoulder. ((Fitz-Hugh-Curtis syndrome)
	Liver abscess	Fever and abdominal pain are the most common symptoms
	Budd-Chiari syndrome	Symptoms include fever, abdominal pain, abdominal distention (from ascites), lower extremity edema, jaundice, gastrointestinal bleeding, and/or hepatic encephalopathy.
	Portal Vein thrombosis	Portal hypertension symptoms
	Basal Pneumonia	Cough, sputum
Pain Epigastrium		
Cardiac	Acute MI	SOB, Sweating
Gastric	Peptic ulcer disease	Epigastric pain or discomfort is the most prominent symptom.
	Gastritis/ Gastropathy	Abdominal discomfort/pain, heartburn, nausea, vomiting, and hematemesis.
	Gastroparesis	Nausea, vomiting, abdominal pain, early satiety, postprandial fullness, and bloating.
	Functional dyspepsia	The presence of one or more of the following: postprandial fullness, early satiation, epigastric pain, or burning.
Pancreas	Acute pancreatitis	Acute-onset, pain radiating to the back.
	Chronic pancreatitis	Epigastric pain radiating to the back.
Esophagus	GERD	Associated with heartburn, regurgitation, and dysphagia.
Left Hypochondrial Pain		
Spleen	Splenomegaly	Pain or discomfort in LUQ, left shoulder pain, and/or early satiety.
	Splenic infarct	Severe LUQ pain.
	Splenic abscess	Associated with fever and LUQ tenderness.
	Splenic rupture	May complain of LUQ, left chest wall, or left shoulder pain that is worse with inspiration.

Causes of Lower Abdominal Pain

Lower abdomen	Localization	Clinical features Comments
Gastrointestinal Causes		
Appendicitis	Generally right lower quadrant	Periumbilical pain initially that radiates to the right lower quadrant. Associated with anorexia, nausea, and vomiting. Occasional patients present with epigastric or generalized abdominal pain.
Diverticulitis	Generally left lower quadrant; right lower quadrant more common in Asian patients	Pain usually constant and present for several days prior to presentation. May have associated nausea and vomiting.
Infectious colitis	Either	Diarrhea as the predominant symptom, but may also have associated abdominal pain, which may be severe. Patients with *Clostridium difficile* infection can present with an acute abdomen and peritoneal signs in the setting of perforation and fulminant colitis.
Renal & GU Causes		
Nephrolithiasis	Either	Pain most common symptom, varies from mild to severe. Generally flank pain, but may have back or abdominal pain. Cause symptoms as stone passes from renal pelvis to ureter.
Pyelonephritis	Either	Associated with dysuria, frequency, urgency, hematuria, fever, chills, flank pain, and costovertebral angle tenderness.
Acute urinary retention	Suprapubic	Present with lower abdominal pain and discomfort; inability to urinate.
Cystitis	Suprapubic	Associated with dysuria, frequency, urgency, and hematuria.

Pelvic causes of abdominal pain in women

Causes	Lateralization	Clinical features	Comments
Ectopic pregnancy	Either side or diffuse abdominal pain	Vaginal bleeding with abdominal pain, typically six to eight weeks after last menstrual period.	
Pelvic inflammatory disease	Lateralization uncommon	Characterized by the acute onset of lower abdominal or pelvic pain, pelvic organ tenderness, and evidence of inflammation of the genital tract. Often associated with cervical discharge.	
Ovarian torsion	Localized to one side	Acute onset of moderate-to-severe pelvic pain, often with nausea and possibly vomiting, in a woman with an adnexal mass.	
Ruptured ovarian cyst	Localized to one side	Sudden-onset unilateral lower abdominal pain. The classic presentation is sudden onset of severe focal lower quadrant pain following sexual intercourse.	
Endometriosis		Associated with dysmenorrhea, pelvic pain, dyspareunia, and/or infertility, but other symptoms may also be present (eg, bowel or bladder symptoms).	
Leiomyomas (fibroids)		Symptoms related to bulk or infrequently acute pain from degeneration or torsion of pedunculate tumor. Pain may be associated with a low-grade fever, uterine tenderness on palpation, elevated white blood cell count, or peritoneal signs.	
Ovarian hyperstimulation		Abdominal distention/discomfort, nausea/vomiting, and diarrhea. More severe cases can have severe abdominal pain, ascites, intractable nausea, and vomiting. Women undergoing fertility treatment.	
Ovarian cancer		Abdominal or pelvic pain. May have associated symptoms of bloating, urinary urgency or frequency, or difficulty eating/feeling full quickly.	
Ovulatory pain (Mittelsmerz)		Occurs mid-cycle, coinciding with timing of ovulation.	

Causes of diffuse abdominal pain

Diffuse/ poorly characterized	Clinical features
GI Causes	
Bowel obstruction	Most common symptoms are nausea, vomiting, crampy abdominal pain, and obstipation.
Perforation of the gastrointestinal tract	Severe abdominal pain, particularly following procedures. an present in an indolent manner, particularly in immunosuppressed patients.
Acute mesenteric ischemia	Acute and severe onset of diffuse and persistent abdominal pain, often described as pain out of proportion to examination.
Chronic mesenteric ischemia	Abdominal pain after eating ("intestinal angina"), weight loss, nausea, vomiting, and diarrhea. May occur from either arterial or venous disease. Atherosclerotic risk factors
Inflammatory bowel disease (ulcerative colitis/Crohn disease)	Associated with bloody diarrhea, urgency, tenesmus, bowel incontinence, weight loss, and fevers. May have symptoms for years before diagnosis. Associated extraintestinal manifestations (eg, arthritis, uveitis).
Viral gastroenteritis	Diarrhea accompanied by nausea, vomiting, and abdominal pain.
SBP	Fever, abdominal pain, and/or altered mental status.
cancer	CA Colon , Renal CA, Others
IBS	Chronic abdominal pain with altered bowel habits.
Diverticulosis	May have symptoms of abdominal pain and constipation.
Celiac disease	Abdominal pain in addition to including diarrhea with bulky, foul-smelling, floating stools due to steatorrhea and flatulence.
Non GI Causes	
Ketoacidosis	Diffuse abdominal pain and nausea and vomiting.
Adrenal insufficiency	Diffuse abdominal pain and nausea and vomiting. Patients with adrenal crisis may present with shock and hypotension.
AIP	

Approach

Pc: Pain abdomen

HOPI …………. SOCRATES

Site	Where is the pain? Or the maximal site of the pain
Onset	When did the pain start, and was it sudden or gradual? Include also whether if it is progressive or regressive
Character	What is the pain like? An ache? Stabbing?
Radiation	Does the pain radiate anywhere?
Associations	Any other signs or symptoms associated with the pain?
Time course	Does the pain follow any pattern?
Exacerbating/Relieving factors	Does anything change the pain?
Severity	How bad is the pain?
Associated symptoms …. Question according to pain site and DDx	

Ascites/ Abdominal Distension

Causes of Abdominal Distension: 6F

Fluid	Generalized	CCF, CRF, Protein loss from GI
	Localized .. only ascites	
Flatus	Intestinal obstruction	
Fat	Weight gain	
Fetus	Pregnancy	
Feces		
Fatal Growth		Liver, Spleen, CA, Aortic aneurysm

Causes of Ascites:

System	**Common Causes**	**Uncommon Causes**
Portal Hypertension	Cirrhosis	
	Alcoholic Hepatitis	
	Acute Liver Failure	
	Budd Chiari Syndrome	
	Heart Failure (cardiac cirrhosis)	
	Constrictive pericarditis	
	Hemodialysis associated ascites	
Hypoalbuminemia	Nephrotic Syndrome	
	Protein loosing Enteropathy	
	Severe Malnutrition	
Peritoneal Disease	Malignant ascites : CA Ovary	
	Infections : TB	Brucellosis Whipple’s disease
Other	Pancreatic ascites	Ovarian hyper stimulation syndrome SLE Abdominal pregnancy Endometriosis VP Shunt
	Myxedema	
	Hemoperitoneum	
	Urologic Peritoneum	
Vascular	Abdominal aortic aneurysm	
Hematologic		Lymphoma Leukemia Amyloidosis Extramedullary hematopoiesis

		Chronic Malaria (Hyperreactive malarial splenomegaly syndrome)

Approach

PC: Abdominal distension –

HOPI:

ODPARA	
Onset	Sudden : mass
Duration	
Progression	Persistent Started as a generalized or from any quadrant (ovary)
Aggravated by	
Relieved by	Diuretics
Is it organic?	Weight has increased? Has your clothes size or belt size increased? Low backache? Difficulty breathing?
Rule out Obstruction	Passing flatus , Recent constipation , vomiting Passing urine?
If female,	Any possibility of pregnancy?
Associated with fever?	
Associated with pain?	
Pedal edema	Before ascites (CCF) or after (CLD)
Diagnosis oriented questioning	
CLD	H/O Jaundice, hematemesis, malena, ASOC (Enceph) Easy brisibility Loss of libido, impotence, ammenhorrea If suspecting CLD, ask etiology Viral Hepatitis : risk fctors Hemochromatosis, Wilson's,Autoimmune, PBC Alcohol If confirmed , ask about other complications: SBP, Hepatorenal,hepatopulmonray
Budd Chiari	Painful mass RHC, Hypercoagulable state Hx
CRF/Nephrotic	Periorbital puffiness, Frothy urine, oliguria, polyuria, DM
CCF	Starting from feet, no H/O orthopnea, PND H/O valvular heart disease, neck veins prominent
Constrictive pericarditis	H/O fever, night sweats, past Hx of TB, TB Contact Chest pain , worse on lying, improves on sitting
Cor pulmonale	H/O lung disease (COPD/ILD)
Aortic Aneurysm	Is swelling pulsatile?

TB	Fever, night sweats, TB contact, lymph nodes
Lymphoma	Lumps and bumps, liver,spleen
Abdominal Malignancy	HCC : HBV, Cirrhosis, jaundice, pain/mass RHC CA Colon: blood in stool
Peritoneal Carcinomatosis	Primary peritoneal Mesothelioma, CA Stomach or colon Mets from CA Lung, Breast Supraclavicular lymph nodes
SLE	
Pancreatic Ascites	pain
Bladder distension	
Ovarian cyst	
Familial Mediterranian fever	• Fever. • Abdominal pain. • Achy, swollen joints. • A red rash on your legs, especially below your knees.
Complications	
SBP	Fever, pain abdomen
Hernias	
Difficulty breathing	
Investigations done so far	
Treatment & side effects	

CHRONIC DIARRHEA APPROACH

NB : * indicates rare causes, tell them at end or avoid telling unless asked

Bio data:

Age of patient….. CA in old age, celiac in young, IBD in middle aged& young

PC:

Can we label it as diarrhea?

Frequency: 3/day

Increased liquidity (پہلے سے زیادہ پتلے)

Increased volume

Can we label it chronic?

Duration …… >4 weeks

	Question	Significance
HOPI		
Stool Characteristics : **ODPARA**		
•	Onset , Duration	
•	Progression	Continuous, intermittent, Nocturnal (organic vs. IBS)
•	Aggravating Factors	Any specific diet which aggravates diarrhea? Milk, Wheat, Barley (Celiac, Non Celiac Gluten/ FODMAPS intolerance leading to osmotic diarrhoea)
•	Relieving Factors	With Fasting …. Osmotic diarrhoea Antibiotics(blind loop syndrome)
•	Associated	Symptoms regarding malabsorption & etiology
•	Do you have pain abdomen which is relieved by passing stool?	IBS …. There is no H/O blood or any signs of malabsorption, Diarrhea alternating with constipation, young
Consistency: characterize is it watery, fatty or inflammatory		
•	Watery?	Secretory , osmotic, functional
•	Greasy/soapy, foul smelling? Difficult to flush چکناہٹ کے ساتھ	Fatty…… small bowel diarrhea
•	Blood or mucus in stool?	inflammatory
•	Mucinous/jelly like	Large bowel diarrhea
•	Colour of stools?	Green? Clay colored? Black tarry?
	Foul smelling	Steatorrhea …… small bowel diarrhea
	difficult to flush	Steatorrhea ……. small bowel diarrhea

Small Bowel vs. Large Bowel

•	Frequency: Episodes per day	5-6 in small gut More in large bowel Up to 20 times in vipoma
•	Volume per stool کیا ہر مرتبہ موشن بہت زیادہ آتا ہے یا بار بار تھوڑا سے آتا ہے	More in small bowel Less in large Bowel
•	Urgency (کیا موشن کے وقت واش روم بھاگ کر جانا پڑتا ہے؟)	Large bowel
•	Incontinence (موشن کر کے جب واش روم سے نکلتے ہیں تو تب بھی لگتا ہے کہ ابھی بھی حاجت رہتی ہے)	Large bowel
•	Blood with stool	Less common in small bowel (Melena) More Common in Large Bowel (hematochezia) OR frank fresh blood
•	Is there pain abdomen? If yes where?	
	Mid abdomen	Small bowel
	Lower abdomen	Large bowel
	RIF	Chron’s/TB
•	Vomiting present	Usually Small bowel Can occur in large bowel if electrolyte imbalance present
•	Bloating: Abdominal distension پیٹ اپھرا جاندا ہووے	Small bowel
•	Flatulence پیٹ وچ گیس ہو جاندی ہووے	Small bowel

	Symptoms Of Malabsorption	
•	Weight loss	caloric
•	Edema……..Growth retardation…..amenorrhea….Muscle atrophy (جسم سُک گیا ہووے)، ،Delayed secondary sexual characters (axillary, pubic hair if diarrhea since adolescence)	protein
•	Steatorrhea - Already asked -	fats
•	Flatulence – already asked	Carbohydrates
•	Fatigue, exertional dyspnea, palpitations Also with orthopnea, PND	Anemia (Fe, B12,Folate , Copper)**Thyroid** Cardiomyopathy (Se)
•	spoon shaped Nails (Cupping of nails), Brittle Nails (کھردرے)	iron
•	**Angular stomatitis** منہ کے کنارے (انگلی سے اشارہ کرکے) پھٹ تو نہیں جاتے، منہ کھولنے پر وہاں درد ہوتا ہو....**Cheilosis** :dry, cracking, ulcerated lips) ہونٹ خشک رہتے ہوں؟ اکثر پھٹ جاتے ہوں.......**Atrophic Glossitis** (red, beefy, Bald tongue) زبان خشک رہتی ہو، ذائقے میں تبدیلی، زبان میں درد/جلن	Fe, B12, Folate, Riboflavin (B2)
•	ہاتھوں پیروں میں سوئیاں چبھتی ہوں، ہاتھ پیر بھاری محسوس ہوتے ہوں، رات کے وقت چلنے میں مسئلہ ہوتا ہو	B12, Mg ,E B12 B12 ,
•	Rash/ Dermatitis جسم پر کوئی نشان بن جاتے ہوں	Niacin (B1) , celiac, zinc , essential fatty acid
•	یادداشت کمزور تو نہیں ہو گئی؟	Niacin , Copper
•	Poor Wound Healing زخم جلدی ٹھیک ہو جاتے ہیں یا ٹھیک ہونے میں بہت ٹائم لگتا ہے Perifollicular petechiae (بال جہاں سے نکلتے ہیں وہاں نشان تو نہیں پڑ جاتے)	Vitamin C
•	Night Blindness شام (مغرب کے وقت) کو کم نظر آتا ہو؟	Vit A
•	ہڈیوں میں درد تو نہیں ہوتا؟ Pathologic Fractures ؟ کبھی کوئی ہڈی بغیر ایکسڈنٹ کے ٹوٹی تو نہیں Proximal Myopathy ؟ نیچے بیٹھ کر اٹھنے میں مسئلہ ؟ سیڑھیاں چڑھنے میں مسئلہ Tetanic Spells ؟ ہاتھ پیر مڑ تو نہیں جاتے	Vit D , Calcium Calcium, Magnesium
•	جسم پر نیل تو نہیں پڑتے؟ مسوڑھوں یا کسی اور جگہ سے خون آتا ہوں؟	Vit K
•	Ataxia, Retinopathy ؟ چلتے ہوئے لڑکھڑاتے تو نہیں؟ نظر ٹھیک ہے	Vitamin E
•	Hair loss? Taste loss or decreased? Hypoguesia Loss of smell? *Hyposmia	zinc

Establish Etiology

Ask questions for watery, fatty, inflammatory first as category established in stool consistency

•	Does watery diarrhea stop during fasting?	Osmotic can occur with any Dx with malabsorption Ask its causes if +ve Hx
•	Does it continue occur during fasting, with nocturnal awakening	Secretory /inflammatory/ steatorrheal Ask its Hx first
•	As you have told me, diarrhea is Greasy, foul smelling, floating	Malabsorption Ask its Hx first
•	Fever, blood, mucus	Inflammatory Ask its Hx first

Osmotic Diarrhoea

•	Any Hx of laxatives? قبض کشا/جلاب آور ادویات	Mg, PO_4, SO_4 , non-absorbable sorbitol e.g. lactulose
•	H/O Bloating, Flatulence or gas, Cramping Abdominal Pain **with milk intake**	**Lactase Deficiency** Usually secondary to any small bowel cause Can be primary if since childhood
•	**OR Wheat, Barley**	FODMAP intolerance

Secretory Diarrhoea

•	Stimulant laxatives e.g. Dulcolax tablets	Laxatives abuse
•	Any Hx of Abdominal surgery i.e. Bowel resection , extent, , (↓ absorption) e.g., Crohn’ s ileitis) or resection of <100 cmof terminal ileum,	Bile Acid Diarrhea
•	Colicky abdominal pain, abdominal distension, with vomiting, Alternating with constipation	Partial obstruction, TB
•	flushing of face , wheezing , dyspnea during episode of diarrhoea , skin lesions (pallegra like)	Carcinoid syndrome
•	diabetes control ? neuropathy? .. intestinal dysmotility.	Autonomic neuropathy
•	Chronic alcoholic	Enterocyte injury
•	Darkness of complexion , dizziness of standing	Chronic Addison’s disease
*	severe pain epigastrium , relieved by PPI	Gastrinoma*
*	up to 20 episodes per day, large volume? with cramps (↓K) ? thirsty	VIPOMA*
*	heat intolerance? neck swelling which moves with deglutition	hyperthyroidism , medullary CA*
*	Skin lesions , itching , SOB	Systemic Mastocytosis*

	Steatorrheal Causes / Fatty Diarrhoea	
•	Is diarrhea worsened by wheat, Barley (جو) , rye (رائی)	Celiac
•	Jaundice , Stool colour --- clay colored	Biliary obstruction
•	Any H/O travel abroad ..specially tropical countries ? Brunei , Burma (Myanmar) , Cambodia , East Timor , Indonesia , Laos, Malaysia ,Philippines , Singapore , Thailand , Vietnam, India	Tropical sprue
•	Ask Risk factors for HIV	Mycobacterium avium-intracellulare infection in AIDS
•	Poor hygiene and sanitation , Inadequate Hand Washing	Giardiasis
•	Any H/O heart failure? Orthopnea ? PND?	Lymphatic obstruction
•	Skin tightness, SOB , Raynaud's phenomenon , Diarrhoea improves with antibiotic course	Systemic sclerosis with bacterial overgrowth
•	H/O olmesartan,mycophenolate mofetil, Colchicine, cholestyramine, neomycin	
•	Any use of drugs to reduce weight e.g. orlistat	
*	Any H/O long standing pain epigastrium , radiating to back , through & through? Any H/O admission for pancreatitis (لبلبے کا مسئلہ) Chronic alcoholic	Chronic pancreatitis*
*	H/o chronic productive cough , wheezing since childhood	*Cystic fibrosis > pancreatic insufficiency
*	Joint pain , fever , lumps & bumps in body , CNS involvement , extreme fatigability	Whipple's disease* MAC in AIDS
*	Diagnosis of exclusion .. Due to autonomic neuropathy	amyloidosis*
*	Old age, Abdominal pain after eating some thing Other CVS risk factors	Ischemic colitis*
•		
•		
•		
•		
•		
•		
•		
	Inflammatory Causes	

•	Fever with night sweats , TB Contact , Past hx of TB, Course of ATT , pain or mass RIF, BCG Vaccination status	TB
•	H/O antibiotic use	Pseudomembranous colitis
•	Blood , mucus	Amebic dysentery
•	Inflammatory Bowel disease : complications	
Complications which worsen with disease activity		**Unrelated to inflammatory bowel disease activity**
•	1. Eyes: Any redness of eyes (**Conjunctivitis** : watery, burning sensation, discharge at night , **Iritis:** pain in eye, worsen with light, **Episcleritis:** mild pain ,watering BUT NO discharge) 2. Oral ulcers 3. RHC Discomfort (Fatty Liver, liver abscess, Portal empyema, fatty liver) 4. Peripheral arthritis 5. Swelling of legs (DVT) 6. Skin lesions Erythema nodosum, Pyoderma gangrenosum	1.Pain RHC (Gall bladder stones) 2. Jaundice with or without clay coloured stools (Autoimmune hepatitis, PSC) 3. Pain or discomfort in flanks پہلو/وکھی (Amyloidosis and oxalate calculi) 4. Backache (Sacroiliitis/ankylosing spondylitis (Crohn's with HLA-B27) 5. Bone pains (Metabolic bone disease)
•	Pain or mass RIF	Chron's disease , TB
•	Pain Left Hypochondrium	UC
•	Marked Weight loss , Mass abdomen	Colorectal carcinoma, Lymphoma
•	AIDS defining illness, HIV Risk factors	HIV diarrhea, CMV Colitis, cryptosporidial diarrhoea
•	Passage of worms in stools	Worm infestation
•	Past HX of radiation therapy	Radiation enteritis
*	Use of NSAIDs,PPI,Statins in middle aged women	Microscopic colitis*
*	H/O allergy , dryness of skin, eczema (چنبل),	Eosinophilic gastroenteritis*
*	H/O recurrent bacterial infections (sinusitis, pneumonia)	Immunodeficiency*
*	Past HX of surgery/transplant, blood transfusion	GVHD*
*	Mouth ulcers, genital ulcers, joint pain	Bechet's syndrome*
•		
•		
•		
PAST HX : already asked in etiology		

Any hx of surgery? Any History of blood transfusion? Transplantation ? GVHD
BCG vaccination?any cough since childhood , growth retardation, admission for pancreatitis

Drug & TREATMENT History : already asked in etiology

medications, OCT drugs, Hakeem medications, laxatives, syrups, antacids , Olmesartan, orlistat

Family hx

IBD, carcinoma , , celiac disease Family Hx of similar diarrhoea

Menstrual hx

late menarche , irregular cycle ; due to malabsorption

Socioeconomic hx

Arsenic exposure? Carpenter --- Secretory diarrhoea

Personal hx

- Do you drink alcohol? smoker? IV Drug abuse
- Risk factors for HIV transmission: Illicit sexual contact,
- Travel abroad , travel outside home , use of unhygienic water
- House , sanitation, hand washing

Personal Antecedents to current illness

Investigations done so far , their results

•	Blood Tests	
•	Stool tests	
•	Imaging	Xray , Barium , USG, CT , MR Enteroscopy,
•	Endoscopy	Upper GI , Lower GI , Capsule
•	Biopsy	Gut, lymph node
•		
•		

PHYSICAL EXAMINATION

GPE	
Look	A cachexic young male lying comfortably in bed(with generalized wasting) , IV line on left forearm Keep examining joints and skin during GPE
Pulse	Rate, Rhythm, collapsing (hyperdyanmic due to anemia)
Brachial BP	BP , Postural Drop (hypovolemia , autonomic neuropathy in HIV, DM, Amyloidosis)
R.R.	
Axillary Temp	
Nails	Leukonychia (albumin) , Koilonychia (Fe) , Clubbing (IBD) , Nail Dystrophy , Transverse ridging of nails*
Hands	Warm, moist, pallor , skin tightness , skin turgor
Arms	Bruises, tattoo mark (HIV?) , Needle marks for IV Drug abuse, epitrochlear lymph nodes **Hair:** Corkscrew hair , perifollicular petechiae , perifollicular hyperkeratosis*, (Vit C) Skin: Cracking (“flaky-paint” or “crazy-pavement” dermatosis), Petechiae (especially perifollicular) , Purpura, **Trousseau sign** of latent tetany
Axilla	Axillary L.N. , Acanthosis nigricans (diabetic diarrhoea)
Scalp	Hair :, texture, patchy loss, easily pluckable hair, Flag sign (transverse depigmentation of hair) , Sparse hair
Face	Periorbital puffiness (R° Renal) , butterfly rash , moon shape Pigmentation, scaling of sun-exposed areas (niacin) Parotid enlargement (Acute malnutrition) Chvostek **sign**

Eyes	Pallor, Jaundice, Redness, Bitot Spots (Vitamin A) Thyroid signs (staring look , exophthalmos , lid lag, lid retraction)
Perioral	Cheilosis (dry, cracking, ulcerated lips), angular stomatitis, Riboflavin, pyridoxine, niacin
Oral	ulcers, hygiene, gum hypertrophy, waldeir ring (lymphoma), **Tongue:** Atrophic lingual papillae (slick tongue) Glossitis (scarlet red, raw tongue; red beefy bald tongue,) Hypogeusia*, hyposmia* (zinc) * Swollen, retracted, bleeding gums (if teeth present) tongue coating, dry tongue
Neck	Cervical lymph nodes , posterior axillary L.N., Thyroid Sacral edema from back
Sternum	Sternal tenderness , Visible deformity*
Inguinal	Lymph nodes
Legs	Pedal edema , erythema nodosum, pyoderma gangrenosum, joints
Feet	Interdigital areas, leions Poor wound healing, decubitus ulcers (Zinc, Vitamin C)
Skin	Any hyper or hypo pigmented lesion , brusises, rash , Scaling (biotin)
Bones & Joints	Beading of ribs, epiphyseal swelling, bowlegs … vitamin D Tenderness, subperiosteal hemorrhage in children .. VITAMIN c

GIT	
Inspection	Surgical scar, pubic hair
Palpation	tenderness (infection and inflammation) and masses, hepatomegaly (also in Acute malnutrition),
Percussion	Shifting dullness
Auscultation	increased bowel sound
PR	anal fissure or fistula in Chron's disease, anal sphincter laxity presence of visible or occult blood on digital examination
Respiratory System	
Inspection, palpation	Usually nothing significant
Percussion	Dullness for effusion
Auscultation	Wheezing (Carcinoid), **Fine Inspiratory crept:** Heart Failure (wet beriberi due to thiamine/ phosphorus deficiency, Cardiomyopathy due to hyperthyroidism / selenium deficiency) Systemic Sclerosis
CVS	
Muffled heart sounds (pericardial effusion due to ↓ albumin), heart murmur (carcinoid),	
CNS	
SOMI	TBM
Cranial Nerves	3rd,4th,6th : Ophthalmoplegia (Thiamine, phosphorus) Taste
Motor	Proximal myopathy,plantars (pathologic fractures due to malabsorption)
Sensory	Neurpathy : vibration, joint position (DM , B12)
Gait	Romberg's sign , Gower sign
Musculoskeletal System	
Inspection	Hands, elbow, knee, ankle
Shober's sign	AS
Fundoscopy	
	Choroid tubercles, HIV : Toxoplasmic retinochoroiditis , CMV Retinitis
Offer **Per Rectal Examination** specillay if bloody diarrhoea	
No obvious clinical evidence of connective tissue, rheumatic or vasculitic disease	Specially pupils, orthostatis, skin, hands, or joints

INVESTIGATIONS

To

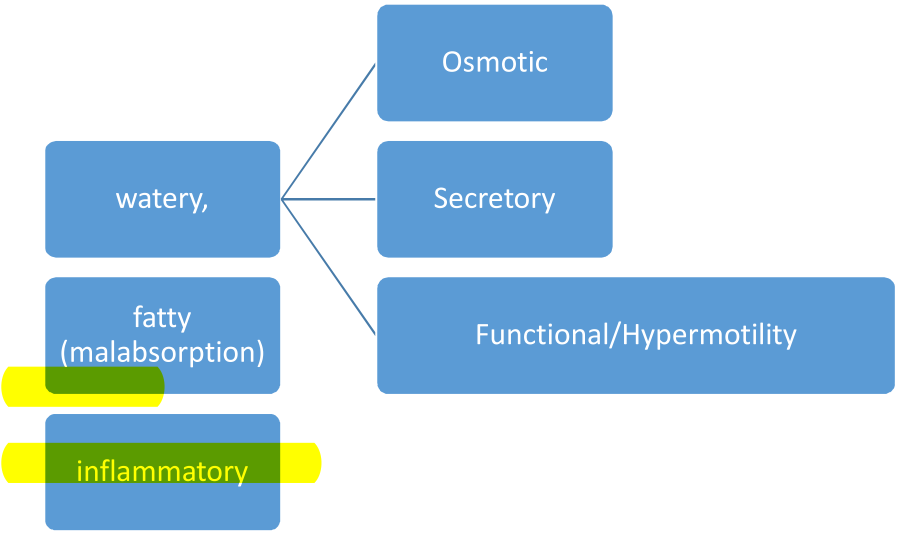
1. Establish etiology , Rule out DD , Confirm Dx
2. Complications i.e. malabsorption
3. Required to decide about treatment , modification
4.

Test	**To see**
BLOOD TESTS	
Complete Blood Count with differential cell counts	anemia, type of anemia & its severity Red Cell indices : MCV , MCH ,MCHC Leukocytosis : acute infection Leukpenia (HIV) Pancytopenia (Bone marrow involvement of lymphoma) **Eosinophilia** (worm infestation , eosinophilic G/E) , neoplasia, collagen-vascular disease, allergy,
Peripheral Blood Smear	RBC Morphology, (Hypochrmic , hypersegmentted macro ovalocytes) Howell–Jolly bodies**:** basophilic nuclear remnants (Celiac)
Reticulocyte Count	Bone Marrow Hypo proliferation : Invasion , Fe, B12 Hyper proliferation: hemolytic anemia associated with lymphoma
ESR	Raised in TB , Also to asses severity of UC
CRP, Leukocytosis	↑ in inflammation
Comprehensive Metabolic Profile	
Serum Albumin	↓
LFTs	
Bilirubin	(Hemolysis ,PSC ,PBC → BAD , Autoimmune Hepatitis)
Alkaline Phosphatase	PSC , PBC, Obstruction by lymphoma
ALT,AST …	Autoimmune Hepatitis with IBD Involvement by CA Colon, lymphoma, TB

RFTs	AKI
Serum Electrolytes	Na, K, Mg, Ca
PT, APTT, INR	
Ca,PO4,Alk Phos	
Blood Levels of	
Iron Studies	
Vitamin B12 ,	
Red Cell Folate Levels	
Vitamin D Levels	
Specific for Etiology	
serum C4 or FGF-19	Screening blood tests for BAD
IgA tissue transglutaminase antibodies	Celiac
Lactose Breath Testing	Lactase deficiency: OR Therapeutic trial of lactose-restricted diet OR observation of the effect of lactose challenge (e.g., a liter of milk).
serum gastrin	Gastrinoma
Serum calcitonin	Medullary CA Thyroid
Thyroid Profile; TSH, FT4, FT3	Hyperthyroidism
????	Carcinoid Syndrome
Serum VIP concentration >75 pg/mL	VIPoma
24-hour urinary excretion of 5- HIAA Urinary excretion of serotonin Serum Chromogranin A Levels	Carcinoid Syndrome Foregut carcinoid
STOOL EXAMINATION	
Stool complete Examination	
Occul blood,	
leukocyte, fecal calprotectin,	
ova,parasites	
Stool osmotic gap	↑ in osmotic
fecal pH	Low pH suggests carbohydrate malabsorption
Qualitative Fat Analysis	By Sudan stain
Bile Acids	BAD
Fecal Culture	to detect bacteria and parasitology work-up for Cryptosporidium, Microsporidium, and Giardia

72 Hours Quantitative Fecal Fat Quantification	>7g/day , requires high fat daiet 100g/day for 2 days
Giardia stool antigen test using ELISA	most sensitive test for giardiasis
Clostridium difficile : Toxins Assay Stool Culture And Analysis Of	
Fecal magnesium or laxative levels	inadvertent or surreptitious ingestion consult psychiatry
Tests for pancreatic exocrine insufficiency	
secretin-cholecystokinin stimulation test	Direct test, preferable
fecal elastase or chymotrypsin activity	Indirect, less sensitive & specific
RADIOLOGICAL INVESTGATIONS	
Chest Xray	Any evidence of TB , lymphoma
Xray Abdomen	Pancreatic calcification
Usg Abdomen	Liver : size, intra/ extra hepatic channels in jaundice Spleen Lymph Nodes, Ascites
Barium Studies	Structural problems e.g. fistulas
CT With Enterography	
Magnetic Resonance With Enteroclysis	
Nuclear Medicine Tests	
Somatostatin receptor scintigraphy with indium-111–labeled octreotide	localizing gastrinoma, pancreatic endocrine tumors, carcinoid tumors
Radioisotopes-Labeled Breath Tests: Lactulose Breath Test Glucose [14C]-d-xylose	SIBO Principle : Breath tests are based on the principle that metabolism of a test dose of carbohydrate substrate (lactulose, glucose, or d-xylose) by the contaminating bacterial flora leads to the production of an analyte (hydrogen, methane, or radioactive carbon dioxide), which is absorbed and ultimately excreted in the breath
ENDOSCOPY	

Upper GI Endoscopy ➢ with small bowel biopsy ➢	Ulcers in gastrinoma biopsy for celiac : duodenal ? Chron's
Jejunal aspirate for ➢ Giardia ➢ Quantitative Cultures	SIBO
Sigmoidoscopy	colorectal biopsies
Colonoscopy	colorectal biopsies
Scintigraphic Radiolabeled Bile Acid Retention Test	BAD ….. or therapeutic trial with a bile acid sequestrant (e.g., cholestyramine or colesevelam
secretin-cholecystokinin stimulation test	



Differential Diagnosis of Chronic Diarrhea

Watery	
Secretory (often nocturnal; unrelated to food intake; fecal osmotic gap < 50 mOsm per kg*)	
	Alcoholism
	Bacterial enterotoxins (e.g., cholera)
	Bile acid malabsorption
	Brainerd diarrhea (epidemic secretory diarrhea)
	Congenital syndromes
	Crohn disease (early ileocolitis)
	Endocrine disorders (e.g., hyperthyroidism [increases motility])
	Medications (see Table 3)
	Microscopic colitis (lymphocytic and collagenous subtypes)
	Neuroendocrine tumors (e.g., gastrinoma, vipoma, carcinoid tumors, mastocytosis)
	Nonosmotic laxatives (e.g., senna, docusate sodium [Colace])
	Postsurgical (e.g., cholecystectomy, gastrectomy, vagotomy, intestinal resection)
	Vasculitis
Osmotic (fecal osmotic gap > 125 mOsm per kg*)	
	Carbohydrate malabsorption syndromes (e.g., lactose, fructose)
	Celiac disease
	Osmotic laxatives and antacids (e.g., magnesium, phosphate, sulfate)
	Sugar alcohols (e.g., mannitol, sorbitol, xylitol)
Functional (distinguished from secretory types by hypermotility, smaller volumes, and improvement at night and with fasting)	
	Irritable bowel syndrome
Fatty (bloating and steatorrhea in many, but not all cases)	
Malabsorption syndrome (damage to or loss of absorptive ability)	
	Amyloidosis
	Carbohydrate malabsorption (e.g., lactose intolerance)
	Celiac sprue (gluten enteropathy)–various clinical presentations
	Gastric bypass
	Lymphatic damage (e.g., congestive heart failure, some lymphomas)
	Medications (e.g., orlistat [Xenical; inhibits fat absorption], acarbose [Precose; inhibits carbohydrate absorption])
	Mesenteric ischemia
	Noninvasive small bowel parasite (e.g., Giardia)
	Postresection diarrhea
	Short bowel syndrome
	Small bowel bacterial overgrowth (> 10^5 bacteria per mL)

	Tropical sprue
	Whipple disease (Tropheryma whippelii infection)
Maldigestion (loss of digestive function)	
	Hepatobiliary disorders
	Inadequate luminal bile acid
	Loss of regulated gastric emptying
	Pancreatic exocrine insufficiency
Inflammatory or exudative (elevated white blood cell count, occult or frank blood or pus)	
Inflammatory bowel disease Crohn disease (ileal or early Crohn disease may be secretory)	
	Diverticulitis
	Ulcerative colitis
	Ulcerative jejunoileitis
Invasive infectious diseases	
	Clostridium difficile (pseudomembranous) colitis–antibiotic history
	Invasive bacterial infections (e.g., tuberculosis, yersiniosis)
	Invasive parasitic infections (e.g., Entamoeba)–travel history
	Ulcerating viral infections (e.g., cytomegalovirus, herpes simplex virus)
Neoplasia	
	~~Colon carcinoma~~
	~~Lymphoma~~
	Villous adenocarcinoma
Radiation colitis	

*—Fecal osmotic gap = 290 – 2 × (stool sodium + stool potassium). It helps differentiate secretory from osmotic diarrhea. Normal fecal osmolality is 290 mOsm per kg (290 mmol per kg). Although measurement of fecal electrolytes is no longer routine, knowing the fecal osmotic gap helps confirm whether watery stools represent chronic osmotic diarrhea (fecal osmotic gap greater than 125 mOsm per kg [125 mmol per kg]) or chronic secretory diarrhea (fecal osmotic gap less than 50 mOsm per kg [50 mmol per kg]).[1]

Information from references 1 and 2.

ETIOLOGY

LARGE GUT

D	DRUGS (ANTACIDS,PROLONGED ANTIBIOTIC USE,TCA'S,ANTYIHYPERTENSIVES,LAXATIVES) DIVERTICULITIS
R	RADIATION
A	ANGIODYSPLASIA, AUTOIMMUNE (IBD)
I	INFECTION (HIV,CMV,GIARDIASIS,T.B,HSV) ISCHEMIC COLITIS
N	NEOPLASIA (LYMPHOMA)

SMALL GUT

W	WORMS, WHIPPLE
H	HYPERTHYROIDISM, HIV
A	ADDISON, AUTOIMMUNE (SYSTEMIC SCLEROSIS)
T	TUMOR (VIPOMAS, GASTRINOMAS, CARCINOID, LYMPHOMA) TRAVEL, TROPICAL SPRUE, T.B
R	RADIATION
B	BOWEL SURGERY
C	CELIAC DISEASE, SEXUAL CONTACT
D	D.M, DRUGS

Miscellaneous (chronic pancreatitis, CF)

Jaundice

Etiology

Hemolytic Jaundice – Indirect Bilirubinemia	
Hemolytic Disorders	A. Inherited i. Membrane defects: Spherocytosis, Elliptocytosis ii. Enzyme Defects: G6PD Deficiency , PK deficiency iii. Hemoglobin Defects: Sickle cell, B. Acquired i. Immune mediated hemolytic ii. MAHA iii. PNH iv. Parasitic infections a. Malaria
Ineffective Erythropoiesis	1. B12, Folate, severe iron deficiency 2. Thalassemia
Increased Bilirubin production	1. Massive blood transfusion 2. Resorption hematoma
Drugs	1. Rifampicin 2. Probenecid 3. Ribavirin
Congenital Conditions (Dubin Jhonson, Rotor cause Direct Bili)	1. Crigler Najjar Type I&II 2. Gilbert's Syndrome
Hepatocellular Jaundice	
Viral Hepatitis	HAV, HBV, HCV,HDV,HEV EBV CMV Herpes Simplex
Alcoholic Hepatitis	
Drug Toxicity	Predictable, dose dependent: Acetaminophen Unpredictable: INH
Environmental Toxin	Vinyl chloride Mushrooms
Wilsons's disease	
Autoimmune hepatitis	
Cholestatic Conditions That May Produce Jaundice	
Extra Hepatic	**A. Benign** 1. Choledocholithiasis 2. Postoperative biliary strictures 3. Primary sclerosing cholangitis 4. Chronic pancreatitis 5. AIDS cholangiopathy 6. Mirizzi's syndrome

	7. Parasitic disease (ascariasis) **B. Malignant** 1. Cholangiocarcinoma 2. Pancreatic cancer 3. Gallbladder cancer 4. Ampullary cancer 5. Malignant involvement of the porta hepatis lymph nodes
Intrahepatic Causes of cholestatis	**A. Viral hepatitis** 1. Fibrosing cholestatic hepatitis—hepatitis B and C 2. Hepatitis A, EBV, CMV **B. Alcoholic hepatitis** **C. Drug toxicity** 1. Pure cholestasis—anabolic Steroids, Oral contraceptive steroids 2. Cholestatic hepatitis—chlorpromazine, erythromycin estolate 3. Chronic cholestasis—chlorpromazine, prochlorperazine **D. Primary biliary cirrhosis** **E. Primary sclerosing cholangitis** **F. Vanishing bile duct syndrome** 1. Chronic rejection of liver transplants 2. Sarcoidosis 3. Drugs **G. Congestive hepatopathy and ischemic hepatitis** **H. Inherited conditions** 1. Progressive familial intrahepatic cholestasis 2. Benign recurrent cholestasis **I. Cholestasis of pregnancy** **J. Total parenteral nutrition** K. Nonhepatobiliary sepsis L. Benign postoperative cholestasis M. Paraneoplastic syndrome N. Veno-occlusive disease O. Graft-versus-host disease **P. Infiltrative disease** 1. Tuberculosis 2. Lymphoma 3. Amyloidosis **Q. Infections** 1. Malaria 2. Leptospirosis

Approach

PC:

HOPI: ODPARA

Onset	
Duration	Jaundice is not since birth
Is it really jaundice?	Has color of eyes/sclera changed or only skin discoloration ? Yes – jaundice No – Carotenemia (excessiveCarrot's , leafy vegetables, peaches, oranges) , Quinacrine, Phenol Exposure Hypothyroidism : cold intolerance, constipation , weight gain , husky voice Vitamin A excess : increased intake of vitamin A
How is skin colour distributed	Equal over all body – Jaundice More in palms, soles, forehead, nasolabial folds – carotenemia
Has the urine colour changed?	tea colored or cola colored – conjugated Bilirubinuria …. Hepatic jaundice No change – unconjugated / hemolytic
Has the stool color changed?	Clay coloured – obstructive or cholestatic jaundice
Itching	cholestatic
Questions for Etiology	
Unconjugated	Not since brith Palness of complexion , easy fatigability, palpitations, intermittent, dragging sensation in LHC (Spleen), – hemolytic jaundice, Ineffective erythropoiesis Fever with rigors and chills – malaria ATT, Rx for HCV (ribavirin)
Obstructive/ Extra hepatic cholestasis	Pain RHC increased by fatty meal, fever, clay colored stools, - GB/CBD Stools H/O surgery, ERCP Mass RHC (Cholangiocarcinoma, CA Pancreas, CA Stomach)

	Lumps and bumps in body (lymph nodes involving porta hepatis) Drugs : OCPs, anabolic steroids, erythromycin , chlorpromazine (drug for hiccups) Passage of worms in stool
Intraheptic cholestasis	Viral hepatitis – covered in Hepatocellular Alcoholic PBC; female , itching, jaundice PSC: H/o bloody diarrhea Sarcoidosis, TB, Lymphoma
Hepatocellualr Jaundice	Anorexia, nausea, vomting,malaise, low grade fever, apin RHC (Acute hepatitis) Previous H/O jaundice, hemetemsis, malena, ASOC, easy Bruisibility, mass LHC (CLD) Mass RHC , anoexia, (HCC) H/O running from home, abnormal involuntary movements (Wilson’s) Vitiligo, joint pains, menstrual irregularities (Autoimmune hepatitis)

UPPER GI BLEED

HISTORY

1.Biodata:

2.PC:

HEMETEMESIS – 8 Hours

3.HOPI:

Is he a known case of DM, HTN, IHD, TB, ASTHMA, EPILPESY, HEPATITIS

if +ve for hepatitis:

clarify which one B or C ? or both?

What was complain at time of diagnosis?

Had he any features of decompensation? abdominal ascites told by doctors, past Hx of hematemesis, loss of consciousness

What treatment he got ? any Hx of INF

HEMETEMESIS: SDO-ICRT-PARA

- Site …. Vomiting
- Duration
- Onset ……. sudden?
- **Was it actually hematemesis?**

  Before hematemesis, Did you had bleeding from nose ? hemoptysis ? dental extraction ? gum bleeding?
- **Character:**
  - **color**: fresh red (سرخ), maroon (لال) , altered colour e.g. coffee ground
  - Did it contain clots?
- **Intensity:**
  - How many episodes? One or more
  - **Amount**, each episode about a cup in amount or more,
  - Had you dizziness, loss of consciousness? was it on standing or even on lying down (more severe loss)?
  - Before vomiting blood, did you notice thirst , nausea, sweating (hypotension?
  - Did you got blood transfusion ? red or white? How many bottles?
- **Associated symptoms**:

    - Did you have melena … black, tarry, foul-smelling, difficult to flush?
    - Have you more than 1 episode of melena? (>25% vol of blood lost)
    - Did you have diarrhea after hemorrhage?
    - Did you undergo endoscopy? What was told to you after that?
    - Decreased urine output? (AKI)
    - Altered state of consciousness? irrelevant talk? (Encephalopathy)
    - Weakness of any part of body? (stroke due to hemorrhage)
- **What treatment given in ER?**
- **Has patient been investigated & treated for this disease? if so details?**
- What explanation patients has about disease… given by doctors or found himself (on internet)

Why the patient bled?

1. Is it cirrhosis ?

- **Does he has viral hepatitis leading to cirrhosis?**
    - If not a known case of HCV… ask risk of transmission
    - If known case of HCV…still, ask sources of transmission to identify why patient got it?
        - Did you have blood transfusion ever?
        - Any Hx of surgery ? where ?
        - Any Hx of IV drug abuse
        - Do you shave yourself or from hair dresser? Does he changes blade in front of you? Is your razer shared by anyone else?
        - Do you toothbrush or miswak? Is it shared by anyone else?
        - Anyone in family has hepatitis ? which type?
        - Body piercing Hx? Ear ,nose
        - Any Hx of tattooing ? (کیا آپ نے جسم کا کوئی حصہ گدوایا ہے/نشان بنوایا ہے؟)
        - Any Hx of illicit sexual contact with sex worker or males?
        - Has he hepatitis B or C?
        - Any Hx of travel abroad ? where? … risk for sexual contact
        - Any Hx of needle stick injury (if health worker)
        - Worked in renal dialysis unit? . clarify in occupation in biodata
- **Other causes of cirrhosis ?**
    - Is he alcoholic ? how many times per day ? duration?

- Any Hx of abnormal movements of hand, fits ? (wilson’s)
- Change in colour, joint pains, infertility, C/O polydipsia, polyuria, polyphagia (SM) (hemochromatosis)
- Pruritus ? cholesterol problem ? (PBC)
- Amenorrhea , weight gain , striae , thyroid problem (Autoimmune)
- Any Hx of drug intake e.g. methotrexate
- Any Hx of shortness of breath on exertion? (alpha 1 antitrypsin deficiency)

➢ **Does he have any other complications of cirrhosis previously?**
- Any Hx of abdominal distension? Rule out H/O Orthopnea, PND, Periorbital puffiness
- Past Hx of hematemesis or melena
- Loss of consciousness, irrelevant talk
- How is sleep? More in day or night? کبھی غنودگی تو نہیں ہوتی
- Bruisibility, Menorrhagia ? (bleeding tendency)
- HCC: Worsening jaundice, pain RHC , Mass RHC, Worsening abdominal distension
- Any Hx of endoscopy, usg done in past?
- Past Hx admission?

2. Gastritis & Esophagitis?
- Any Hx of long standing pain epigastrium (معدے میں درد), ↑ or ↓ by meals?
- Any Hx of pain killers intake (NSAIDS)? Do you remember name?
- Any Hx of Aspirin intake?
- Any Hx of long standing retrosternal burning ? (سینے میں جلن/ساڑ)
- Any Hx of Steroids intake?
- Do you drink alcohol?

3. Is it Mallory-Weiss syndrome?
- Before first episode of hematemesis, did you have **forceful vomiting** [retching (متلی) and severe non-bloody vomiting] ?

4. Is it gastric or esophageal malignancy?
- Loss of Appetite (بھوک صحیح لگتی ہے)
- Weight loss ? >5% ?
- Fatigue

5. Is it bleeding diathesis?

  - Do you bruise easily? (کیا معمولی چھوٹ سے بھی آپ کا خون زیادہ بہتا ہے؟)
  - Bleeding from any other orifice e.g. hematuria , hemoptysis , gum bleed
  - Any use of warfarin , heparin (خون پتلا کرنے والی کوئی دوائی)

6. **Any Hx of surgery ?** … aorto-enteric fistula ? repaired gastric ulcer perforation?
7. **Hereditary Hemorrhagic Telengectias /Other rare disorders :**
   Any H/O similar upper GI Bleed in family without Known cause?
   Any Spider angiomas on body ?
8. Anticoagulants intake: H/O intake of drugs other than NSAIDs

4.PAST HISTORY (PH) :

Any H/O of similar episodes in past , admissions ,
other medical & surgical Hx
Hepatitis B vaccination

5.Drug & Treatment Hx:

6.Menstrual Hx:

7.Family Hx:

Any similar episodes, HBV, HCV in parents, siblings, children

8.Social Hx:

i. Occupation
ii. Finance
iii. House & Surroundings,
iv. Any pets, animals , cooking & milk
v. Relationships & Domestic
  - Effect of disease/complain on patient’s life … office, family

9.Personal Hx:

i. Upbringing & educational
ii. Diet & Exercise
iii. Hobbies & Leisure Activities
iv. Addiction: smoking, alcohol, IV Drug abuse
v. Travelling: out of city & abroad
vi. Sexual History (if appropriate)

10. Review of Systems: important systems

i. General Health
iii. Cardiovascular System (cardiac cirrhosis)
iv. Respiratory System (hepatopulomonary or portopulmonary syndrome)
vi. Genitourinary Systems (Hepatorenal)
a. Urinary Symptoms…. General
b. Male …. Specific + genital symptoms (libido)
c. Females…. Already asked in menstrual
vii. Nervous System (hepatic enceph)
viii. Hematology
ix. Musculoskeletal System
x. Skin
xi. Endocrine … DM ? Fertility ?
xii. Psychiatric.. deprssion

۱۱. آپ نے مجھے یہ کچھ ابھی تک بتایا ہے؟ Reflect back summary

کیاآپ کوئی ایسی چیز بتانا چاہیں گے جو مجھ سے پوچھنے میں رہ گئی ہو ؟

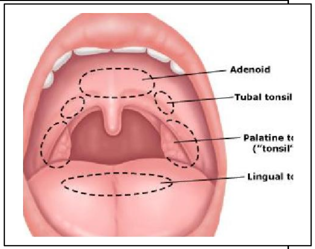
۱۲. کیاآپ کا کوئی سوال ہے جوآپ پوچھنا چاہتے ہوں ؟

۱۳. اس وقت آپ کے نزدیک ان مسائل میں سے اہم ترین کیا ہیں ؟

PHYSICAL EXAMINATION

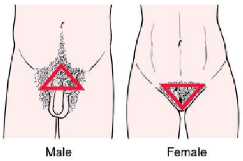
GPE

General Look	A cachexic male lying in bed with IV line , NG, Folley Complexion : dark in CLD , Slate grey IN Hemochromatosis (A muddy-grey coloured hyperpigmentation occurs in chronic liver disease of any cause. It is due to hypermelanosis with normal numbers of melanocytes,)
VITALS	
Pulse	
Brachial BP	Postural hypotension
R.R.	
Temp	
Hands	
Dorsal Surface:	interosseous muscle wasting ,
Nails	Clubbing (15%) Koilonychia Leukonychia (thumbs and index fingers first; causes by capillary compression by extracellular fluid) Muehrcke's Bands (**Leukonychia Striata) :** curved white lines (leukonychia) that extend all the way across the nail and lie parallel to the lunula (half moon) , Not grooved **Terry's nail:** diffuse white colour with an invisible lunula, proximal white colour with distal pink colour, azure-blue colour Lunula: in Wilson's disease
Palmar Surface	Palmar erythema (may also affect the soles of the feet, and also to facial plethora) Dupuytren contracture Flapping Tremors
Arms	Scratch marks / Excoriations Tendon xanthomas Iv Drug needle track marks Bruises (Ecchymosis or petechiae) Tattoos ***Triceps skinfold <3 mm*** , ***Midarm muscle circumference <15 cm*** (Cachexia; Chronic Disease–Related Malnutrition))
Axilla	Paucity of axillary hairs **(Loss of secondary sexual hair in males)** Lymph Nodes
Hair	Alopecia for autoimmune disorders

Eyes	Pallor Jaundice Xanthelasma (PBC) Arcus KF Ring Eye signs mimicking hyperthyroidism
Face	loss of buccal fat pad , temporal muscle wasting Parotid Fetor hepaticus
Oral Cavity	Angular stomatitis Oral Ulcers Orodental hygiene Pallor Jaundice : soft palate , underside of tongue Waldeyer's lymphatic ring Lichen planus (primary biliary cirrhosis) *Green-colored sweat and green discoloration of the gingivae may occur due to jaundice.*  Adenoid Tubal tonsil Palatine t ("tonsil" Lingual t
Neck from front	Thyroid
Front of Chest	Gynecomastia Sternal tenderness (bone tenderness) Spider Naevi Paper Money Skin (Diffusely scattered tiny telangiectatic vessels are referred to as 'paper money skin)
Legs	Pedal edema Clubbing and all those seen in hands Pyoderma gangrenosum (in CAH)*
Spider Angiomas	**On arm, front of chest, back of chest**
Make the patient sit, go to back	
Cervical Lymph Nodes Thyroid Posterior Axillary L.N. Supraclavicular L.N. Sacral Edema	
Respiratory System from Back	
Pleural Effusion	Right sided or Bilateral
Ranchi/Prolonged expiration	Obstructive lung disease > Alpha 1 Anti Trypsin deficiency

Make the patient lie flat

Abdominal examination

Inspection  	-Distension, , -striae, -scars/tap marks, -scratch marks , -check hernia orifices -Prominent abdominal collateral veins When visible veins are in a pattern radiating from the umbilicus, the appearance is termed ‘caput Medusae’. -pubic hair pattern: males tend to develop a female pubic-hair pattern
Palpation	Tenderness (generalized: SBP , Epigastric: APD) Epigastric mass Hepatomegaly _ Splenomegaly _ testicular atrophy Kidneys
Percussion	Shifting Dullness Fluid thrill
Auscultation	Bruits and rubs , hepatic Venous hum
PR	

Make the bed at 45° ………….CVS Examination

JVP	
Any Murmur	
Loud P2	Portopulmonary hypertension
TR	

Respiratory Examination from Front

Pleural Effusion	Right sided or Bilateral
Ranchi/Prolonged expiration	Obstructive lung disease > Alpha 1 Anti Trypsin deficiency

Nervous System

Orientation	GCS, Mini Mental State exam
Higher Mental Functions	**Constructional apraxia** (Ask him to right his name , signatures OR Draw clock or star)
Cranial Nerves	
Motor	Check tone for Wilson’s, abnormal movements

Musculoskeletal Examination

Joints	hemochromatosis

Vomiting

Differential Diagnosis of Nausea and Vomiting

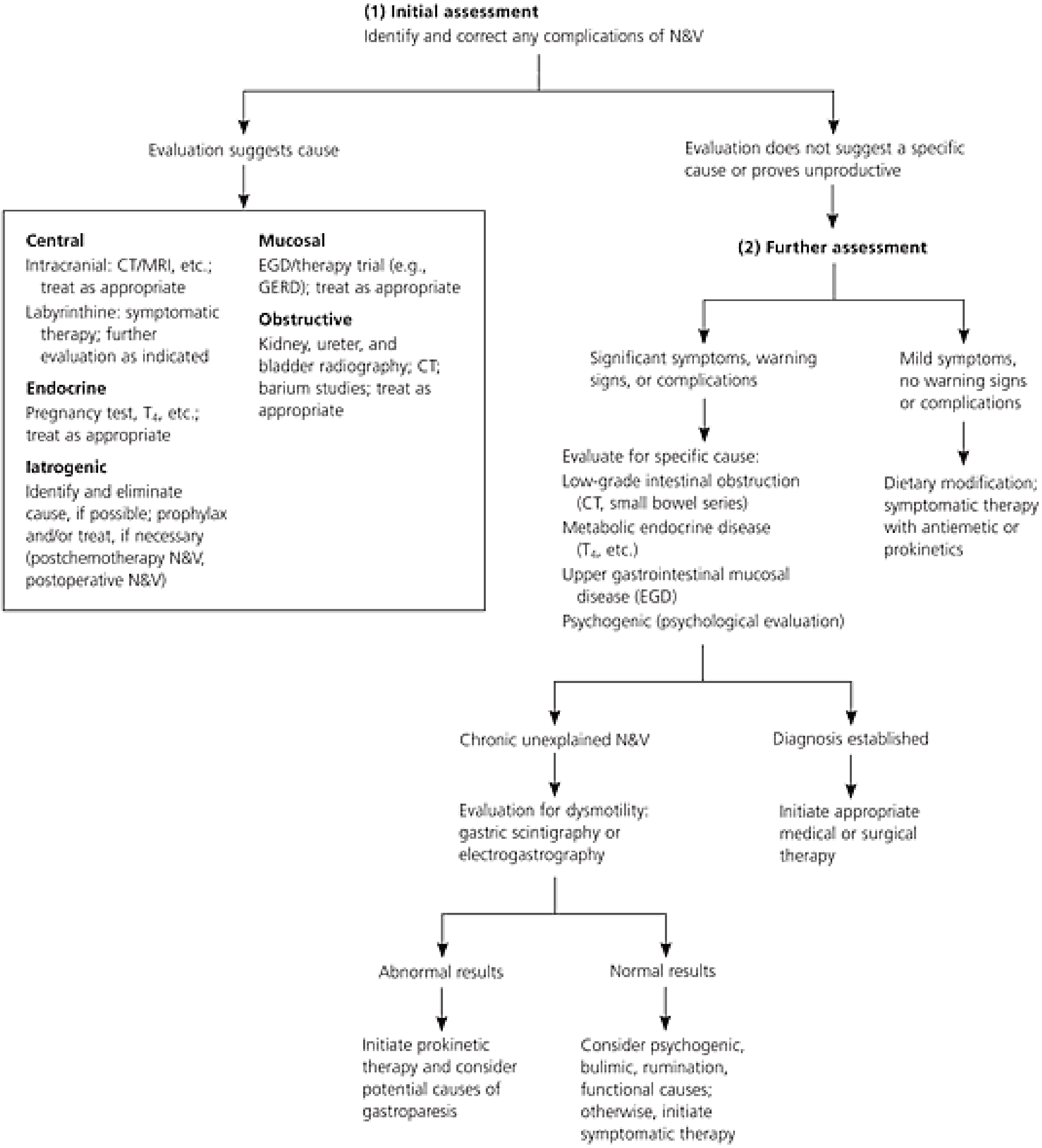
CNS Causes	• Closed head injury • Increased intracranial pressure ○ Cerebrovascular accident (infarction/hemorrhage) ○ Hydrocephalus ○ Mass lesion ○ Meningitis/encephalitis/abscess ○ Pseudotumor cerebri • Migraine • Seizure disorder
Vestibular	○ Labyrinthitis ○ Ménière's disease ○ Motion sickness
Gastrointestinal	• **Functional disorders** ○ Chronic intestinal pseudo-obstruction ○ Gastroparesis ○ Irritable bowel syndrome ○ Nonulcer dyspepsia
	• **Obstruction** ○ Adhesions ○ Esophageal disorders/achalasia ○ Intussusception ○ Malignancy ○ Pyloric stenosis ○ Strangulated hernia ○ Volvulus
	• **Organic disorders** ○ Appendicitis ○ Cholecystitis/cholangitis ○ Hepatitis ○ Inflammatory bowel disease ○ Mesenteric ischemia ○ Pancreatitis ○ Peptic ulcer disease ○ Peritonitis
Infections	• Acute otitis media • **Bacteria** ○ Bacterial toxins ○ Food-borne toxins ○ Pneumonia ○ Spontaneous bacterial peritonitis ○ Urinary tract infection/pyelonephritis

	- **Viruses**
	  - Adenovirus
	  - Norwalk
	  - Rotavirus

Medications	Antiarrhythmics Antibiotics Anticonvulsants Chemotherapeutics Digoxin Ethanol overdose Hormonal preparations Illicit substances Nonsteroidal anti-inflammatory drugs Opiates Overdoses/withdrawal6 Radiation therapy
Toxins	Arsenic Organophosphates/pesticides
Metabolic	○ Adrenal disorders ○ Diabetic ketoacidosis ○ Paraneoplastic syndromes ○ Parathyroid disorders ○ Pregnancy ○ Thyroid disorders ○ Uremia
Miscellaneous	○ Acute glaucoma ○ Acute myocardial infarction ○ Nephrolithiasis ○ Pain ○ Psychiatric disorders ○ Anorexia nervosa ○ Anxiety ○ Bulimia nervosa ○ Conversion disorder ○ Depression ○ Psychogenic/emotional

Approach

Onset	
Duration	
FVCC	Frequency Volume Color & Contents Consistency
Progression	
Aggravation	
Relieving	By anti emetics , Onset
Associated	
Is it central?	Headache, worse in morning, vomiting more in early morning , projectile, no nausea Vertigo (vestibular)
Is it GI ?	Preceded by nausea, Associated with pain abdomen , cramping Contents : acidic : stomach Bilious : small bowel Feculent: colonic
GI Vomiting features	Diarrhea? (GE) Vomiting after 1-2 hours (Obstruction) Vomiting immediately (Gastritis, Esophageal problem) Vomitus contains undigested food (Outlet obstruction)
Non GI Other causes	Chest pain? Oliguria, hematuria, … CKD Fever, infection source …sepsis Drugs - NSAIDS


(1) Initial assessment
Identify and correct any complications of N&V
Evaluation suggests cause
Evaluation does not suggest a specific cause or proves unproductive
Central
Intracranial: CT/MRI, etc.; treat as appropriate
Labyrinthine: symptomatic therapy; further evaluation as indicated
Endocrine
Pregnancy test, T_4, etc.; treat as appropriate
Iatrogenic
Identify and eliminate cause, if possible; prophylax and/or treat, if necessary (postchemotherapy N&V, postoperative N&V)
Mucosal
EGD/therapy trial (e.g., GERD); treat as appropriate
Obstructive
Kidney, ureter, and bladder radiography; CT; barium studies; treat as appropriate
(2) Further assessment
Significant symptoms, warning signs, or complications
Mild symptoms, no warning signs or complications
Evaluate for specific cause:
Low-grade intestinal obstruction (CT, small bowel series)
Metabolic endocrine disease (T_4, etc.)
Upper gastrointestinal mucosal disease (EGD)
Psychogenic (psychological evaluation)
Dietary modification; symptomatic therapy with antiemetic or prokinetics
Chronic unexplained N&V
Diagnosis established
Evaluation for dysmotility: gastric scintigraphy or electrogastrography
Initiate appropriate medical or surgical therapy
Abnormal results
Normal results
Initiate prokinetic therapy and consider potential causes of gastroparesis
Consider psychogenic, bulimic, rumination, functional causes; otherwise, initiate symptomatic therapy

Rheumatoid Arthritis

Presenting Compliant : Ask its detail

Pain in joints …………

If K/C of RA and admitted with complication like upper GI Bleed .. then do ask how diagnosis was made? hand xrays? Blood tests?

HOPI:

Duration	>6 weeks in RA usually	
Onset		
Involvement	B/L Symmetrical Started from small joints of hands and feets , involving PIP joints Involving both small and large joints Count NUMBER of joints (ACR Criteria) Continuous or intermittent	Its polyarthritis
Severity	Mild to moderate Severe (disturbs activity, awakens from sleep)	
Aggravated by	Rest, sleep, day time inactivity	
Relieved by	Activity, NSAIDS	
Associated with	Joint swelling	Its arthritis
	Redness	
	Early Morning stiffness >30 minutes	
	Fever, malaise, weight loss	Constitutional symptoms
Is it RA only or MCTD?		
SLE		
Polymyositis/ Dermatositis		
Raynaud’s		
Is it RA or anything else? Ask questions of DD		
Osteoarthritis	Involvement of DIP , large weight bearing joints, crackling sounds	

	NO fever or systemic sounds	
Gout	Swollen big toe, hot, tender	
SLE	Alopecia, oral ulcers, photosensitivity, malar rash, discoid rash, stiffness<30 min, Hematuria, fits, ASOC, Psychosis Recurrent pregnancy loss (APS)	
Sarcoidosis	Parotid swelling, lumps and bumps, dry cough	
Rheumatic Fever	Erythema Marginatum, palpitations, subcutaneous nodules, chorea	
Ankylosing Spondylitis	Backache, difficulty in Rakoo in prayer, pain in the sole of feet	
Psoriasis	Nail pitting, skin lesions, backache	
Enteropathic	Bloody diarrhea	
Reactive	H/O Sexual contact, urethral discharge	
HCV Associated		
PAN due to HBV		
HIV Arthropathy		
PMR	Age>50, proximal muscle pain	
Lymes		
Functional limitation		
Grooming		
Opening the lids		
Holding cup of tea		
Proximal weakness		
Extraarticular Manifestations		
CNS	Neck pain , Weakness of limbs	atlantoaxial subluxation
	Numbness in hands & feet	Peripheral neuropathy Carpal tunnel syndrome
	Surgery, anesthesia	??
Eye	Dryness, xerosis	Sjogren
	Red, painful,	Uveitis
	Decreased vision, operated for cataract	s/e of steroids

Lungs & Heart	Change in voice SOB, Foul smelling copious sputum Aortitis , AR	cricoarytinitis ILD, Pleural effusion Bronchiectasis
	Chest pain	Pleurisy , pericarditis
Renal	Frothy urine	Amyloidosis
Blood	Paleness of complexion, SOB Spleen,lymph nodes	Anemia Felty's syndrome
Skin	Cold blue fingers, improved by warmth	Raynaud's phenomenon
	Leg ulcers / pyoderma ganrenosum	
	Skin nodules دانے	Subcutaneous nodules
Treatment and complications		
NSAIDs	Pain epigastrium, Malena, hematemesis Analgesic nephropathy	
Steroids	Proximal myopathy, decreased vision, Blood sugar ? , HTN?	
Methotrexate	Pallor, bruising, Jaundice Shortness of breath	Pancytopenia Hepatitis ILD
Systemic review		
Personal antecedents	Investigations done so far: Xray, RA, Anti CCP, Blood tests Rx given:	
Past Hx		
FH		
Personal	E A S T	
Socioeconomic Hx	O : problems at job F A H : stairs, railing, R	کیا بیماری کی وجہ سے نوکری / کام / گھر کے کام کاج میں کوئی مسلہ ہے ؟

Examination

GPE		
Look		
Pulse		
BP		
RR		
Temp		
Hands		
Palmar erythema		
Wasting		
Joints	PIP,Wrist, all joints	
Nail fold infarct		

APPROACH TO SLE

Biodata:

Presenting Complaint: ODPARA

HOPI

Detail of PC		
ODPARA		
Is it SLE? Ask Questions relating to ACR Criteria		
Is patient at increased risk of SLE	Young female of reproductive age	
	Current tobacco smoke	
	Symptoms triggered by EBV infection (sour throat)	
	Symptoms worsen by UV Light (Sun light)	
Questions regarding SLE Criteria		
Non-scarring Alopecia	Hair fall, Thin hair, easily broken hair, visible broken hair	R° alopecia areata, Fe deficiency, androgenic alopecia
CNS	Seizures, irrelevant talks, mood swings(psychosis), any focal neurological deficit (stroke, weakness, nerve palsy), ASOC , memory loss , headache, uncontrolled movements of hands	chorea
Butterfly / Malar Rash	In Acute cases; Skin rash, red, photosensitive, on face, ears, chin, V region of neck, non-scarring	
Discoid Rash	In chronic cases: Round lesions, white (depigmented) center with hyper pigmented (erythematous) rims Can cause scarring Livido reticularis	Localized: above the neck Generalized: Above & below the neck
Photosensitivity		Not in SLICC
Oral Ulcers + GIT	Painless; buccal, tongue, nasal Dry mouth **USAD-BJP** : Ulcers (oral/anal), Swallowing difficulty, Appettie, , Indigestions(NVD), Distension, dragging sensation Bowel Habits alteration, Blood in stool Jaundice , Pain abdomen	Without any Hx of IBD, reactive arthritis, acidic foods, Bechet's splenomegaly
Synovitis	Painful, tender or swollen joints (≤2) **+** Morning stiffness of more than 30 minutes Hand deformities, pain in muscles, any H/O fracture	Common: wrist , knee, ankle

Serositis	**Pleuritic chest pain** F S C Home Work Problem Fever, SOB, Cough ± Sputum , Hemoptysis, Wheezing,	Pleuritis pulmonary arterial HTN ILD Alveolar hemorrhage
	Chest pain, aggravated on lying down, relieved by sitting SAD-OP^{4}D (PND, Palpitations, Pedal edema, pain in legs on walking, **DVT , PE ,or past Hx)**	Pericarditis Myocarditis IHD Libmann Sack Endocarditis
Renal **BV Lost F^{2}UND**	**Frothy urine** (like someone mixed soap or surf in water) , generalized body edema, periorbital puffiness Blood in urine , Volume … ↓ or ↑ , Loin to groin pain , Frequency, frothy urine Urgency , Nocturia, Dysuria ... burning micturition	
Hemolytic Anemia	Exertional SOB, paleness of complexion, Yellow eyes	R° other causes of hemolytic anemia
Thrombocytopenia	Any bruises, petechiae	
Leukopenia		
Systemic Review		
General Health **Mnemonic:** **WAFR (وافر)** **Sleep**	Weight gain or loss	Intentional or unintentional
	Appetite: ↑, ↓ or N	
	Fever	
	Reduced Energy(fatigue)	
	Sleep:	
EYE	Vision?	Optic neuritis, Retinal vasculitis
	Redness? Watering?	Conjunctivitis, Episcleritis (mild pain , watering BUT NO DISCHARGE)
	Dryness? رڑک	Secondary Sjogren
	Swelling?	
	Diplopia?	mononeuropathy
	Yellow eyes	Hemolysis, hepatitis
Neck	Swelling in neck, moves with deglutition	???????
	Any lumps & bumps	Reactive lymph nodes
Musculoskeletal **JR-PEMRA**	Joints , Rash	Already asked
	Photosensitivity	
	Eyes … dry, red	
	Mouth … dry, ulcers	
	Rayund’s , nail fold infarcts	
	Livedo reticularis	
Gynecological & Obstetric Hx	Regularity of menstrual cycle Recurrent pregnancy loss (after how many weeks?) Premature delivery before 34 weeks (due to eclampsia)	

Is it SLE only? OR MCTD?		
Systemic Sclerosis Questions		
Rheumatoid Arthritis Questions		
Dermatomyositis	Proximal myopathy , skin rash	
polymyositis	Proximal myopathy	
Sjogren Syndrome		
Triggering Drugs		
	Isoniazid Hydralazine Methyldopa Procainamide Phenytoin	
Workup done so far for disease?		
Investigations	ANA , Anti ds DNA , Baselines	**Blood tests**
	Xrays , Ultrasound	**Radiology**
	C/E , 24 Hour proteins	**Urine**
	ECG , Echo	**Cardiac**
	Pleural tap , Ascitic tap	**Fluid Analysis**
	Renal , lymph node	**Biopsy**
Consultations	Visited any Dr, Hakeem ?	
	Visited any nephrologist, dermatologist	
	What diagnosis was told?	
	What treatment was given?	
Treatment History		
Treatment, compliance, response & side effects	Do you apply sun block?	
	NSAIDS	Pain epigastrium
	Glucorticoids	BSL, HTN, Proximal myopathy
	Immunosuppressant (Imuran, Methotrexate, injectable)	Bone marrow suppression, SOB, Aplastic anemi
Dilaysis	Type? Frequency?	
Allergies	Any allergy to any drugs	
Activities of Daily Living		
	Independent or dependent	
Past History		
	DM, HTN, IHD, Hyperlipidemia	↑ Risk of atherosclerosis
	Hepatitis	↑ Risk of hepatotoxicity with drugs

	Any admissions	
	Any surgery	
	Blood transfusions	Types , any reaction,
Family History		
	Of SLE , DM , HTN , IHD etc	
Personal History		
Addiction	Smoking , alcohol IV Drug abuse	
Activities	Diet , exercise, hobbies	
Sexual Hx		
Travel Hx		
Socio economic History		
Occupation	Current , past WHACS. What, How, Concern, Colleagues, satisfied?	
Finance	Earning , dependent persons? , enough for living, How are expenses of disease ?	
House & Surroundings	Own/ rented? Water supply? Sewerage? Mosquitos around? Factory area around	ILD
Milk , Cooking		
Pets , Animals		
Concerns		
Patients knowledge about Dz	Disease name? nature? Treatment options?	
He is facing	Financial concerns because of obvious reasons	
Other concerns are	About diagnosis, prognosis, treatment and about further plan of doctors regarding management.	

PHYSICAL EXAMINATION

GPE	
Look	A cachexic young male lying comfortably in bed(with generalized wasting) , IV line on left forearm Keep examining joints and skin during GPE
Pulse	Rate, Rhythm, collapsing (hyperdyanmic due to anemia)
Brachial BP	BP , Postural Drop
R.R.	
Axillary Temp	
Nails	Koilonychia (Fe) , Clubbing (IBD, Lymphoma,)
Hands	Warm, moist, pallor , skin tightness , skin turgor
Arms	Bruises, tattoo mark (HIV?) , Needle marks for IV Drug abuse, epitrochlear lymph nodes
Axilla	Axillary L.N. ,
Face	Periorbital puffiness (R° Renal) , butterfly rash , moon shape Parotid enlargement (Alcoholism) Chvostek **sign**
Eyes	Pallor, Jaundice, Redness, Thyroid signs (staring look , exophthalmos , lid lag, lid retraction)
Perioral	Cheilosis (dry, cracking, ulcerated lips), angular stomatitis, Riboflavin, pyridoxine, niacin
Oral	ulcers, hygiene, gum hypertrophy, waldeir ring (lymphoma), **Tongue:** Atrophic lingual papillae (slick tongue) Glossitis (scarlet red, raw tongue; red beefy bald tongue,) Swollen, retracted, bleeding gums (if teeth present) tongue coating, dry tongue Gum Hypertrophy in AML M3
Neck	Cervical lymph nodes , posterior axillary L.N., Thyroid Sacral edema from back
Sternum	Sternal tenderness
Inguinal	Lymph nodes
Legs	Pedal edema , erythema nodosum, pyoderma gangrenosum, joints , Tenderness on anterior tibia Ulcers near medial maleolus
Skin	Any hyper or hypo pigmented lesion , brusises, rash ,
Bones & Joints	Rheumatoid hands … anemia of chronic disease

No obvious clinical evidence of connective tissue, rheumatic or vasculitic disease

GIT:

Liver , Spleen , Ascites , Lymph nodes ,

Enlarged kidney --- anemia in CKD

PR .. bleeding

Resp: pleural Effusion , pleural rub

fine inspiratory crepts of ILD

CVS: pericardial rub

Flow murmur, Libmann Sack’s Ednocrditis endocarditis

CNS:

GCS ,

SOMI

Motor: proximal myopathy

Peripheral neuropathy (e.g., weakness, paraesthesias, ataxia, foot drop, and decreased tendon reflexes, fine tactile sense, vibratory sense, and position sense)

Romberg’s sign

Delayed tendon reflexes in hypothyroidism

MSK : joints ; shober’s

Fundoscopy : Roth spot in anemia

PR

Are there features to suggest underlying autonomic neuropathy or collagen-vascular disease in the pupils, orthostasis, skin, hands, or joints?

INVESTIGATIONS

CKD

Etiology: DM,HTN

DAMEGE TO NEPHRONS

D	Diabetes Melltius , Drugs
A	Analgesics
M	Multiple Myeloma
A	Aloprt's
G	Glomerculonephritis
E	Endocrine : Hypothyroidism?
T	Toxins , Hakeem meds TB
O	Others : Vesico ureteral reflux
N	Nephrocalcinosis : renal stones
E	Etiology unknonw
P	Polycystic kidney disease Pelvis tumour causing obstructive uropathy
H	HTN
R	Retroperitoneal fibrosis secondary to pelvic radiations
O	Obstrictive uropathy
N	Nephritis: chronic interstitial
S	Secondary GN: SLE , Scleroderma

Approach

PC:

HOPI:

Details /ODPARA of PC

Symptoms of Uremia	
General	Anorexia, fatigue, itching , scratch marks
CNC	ASOC, Fits, irrelevant talks Restless legs, Pins and needles in feet Leg cramps
Respiratory	SOB (Overload, pleural effusion)
Cardiac	Dyspnoea, orthopnea, PND, Pericarditis : chest pain imporves on sitting, worse by inspiration
GIT	Metallic taste, Loss of appetite Nausea, vomiting, hiccups Pain epigastrium, hemetemsis, malena (uremic gastritis)
Blood	Palness Bruisibility Bleeding
GU	Nocturira Erectile dysfunction
Etiology	
Diabetes	Duration? Controlled? Concomitant retinopathy? neuropathy? Other complications?
HTN	Other complications of HTN
Analgesics	
Multiple myeloma	Bone pains, anemia, spontaneous fracture
Alport’s	Deafness, family Hx
Glomerulonephritis	Hematuria, frothy urine oliguria pedal edema , periorbital puffiness **Secondary GN:** HBV, HCV ,SLE, Scleroderma
Endocrine :	Hypothyroidism ???
TOXINS	Hakeem medications Kushtas NSAIDs

Other : Vesicoureteral reflux	Recurrent UTI in childhood Operations , cystoscopy
Nephrocalcinosis	Renal stones Pain in loin , hematuria
E etiology unknown	
Polycystic kidney disease	Family Hx? Flank pains , abdominal distension, heamtura, h/o sudden severe headache (SAH)
HTN	
Radiation to pelis	Retroperitoneal fibrosis
Obstructive uropathy	Proatatism : frequency urgeny, nocturia, overflow incontinence
Nephritis	NSAIDS, ATT
Secondary GN	SLE, Scleroderma HIV
Investigations	Urine C/E, RFTs, Viral Markers, INR Iron studies PTH, Ca PO4
Treatment	Dietary restrictions following ? sodium? Water? Iron …. S/C injections? Calcium tablets? Need of blood transfusion?
	Advised dialysis? Ever underwent? Complications? Benefit? Frequency? Duration of each session? Access? AV fistula ? Symptom relief with dialysis? Fever : Catheter related infections , Infective endocarditis
	Renal Transplant: If not done, does he know this option? If yes, when and how many ? one or both? From relative or non relative? Psot op course … immunosuppression Symptoms after transplant …. HTN (Cycloporin) Longterm complications : Lymphoma, skin cancers
	Parathyroid surger? Previous admissions with complication?

Altered State of Consciousness

Etiology :

Neurological	Trauma ,Stroke, SAH, Venous Sinus Thrombosis Lupus cereberitis, , SOL, Hydrocephalus, TTP, DIC
Infectious	Meningitis, Encephalitis, Malaria, Cereberal abscess Neurosyphilis Toxoplasmosis in HIV
Toxins	Alcohol , Methanol ,TCA , Tranqulizers , Organophosphates , opioids
Metabolic	Hypoxia, Hypercapnia Porphyrias
	Hyponatremia, Hypernatremia
	Hypoglycemia, Hyperglycemia
	Hypercalcemia, Hypocalcemia
	Hepatic Encephalopathy
	Uremic Encephalopathy
Endocrine	Thyroid storm , Myxedema coma Addisonian Crisis
Environmental	Hypothermia, Hyperthermia

Approach

PC:

HOPI: ODPARA

Onset	Sudden over seconds (Vascular) Gradual
Duration	
What was he doing?	Sleeping? At work? Found unsconsious on road in extreme cold or heat?
Progression	Complete or progressed gradually
Structural or non structural	Focal neurological deficit persisted after regaining consciousness…. Structural (CVA, SOL,Abscess) Resolved …. No structural
Level of consciousness	
Hyper-alert	heightened arousal , can be verbally and physically threatening, aggressive.
Confused	disorientated; and having difficulty following commands. بندے نہیں پہچانتا ؟
Delirious	disorientated; restless, hallucinating, sometimes delusional.
Somnolent	sleepy, responding to stimuli only with incoherent mumbles or disorganized movements. سویا رہتا تھا ؟
Lethargic	reduced level of alertness with decreased interest in the surrounding environment.
Obtunded	similar to lethargy; the patient has a lessened interest in the environment, has slowed responses to stimulation, and tends to sleep more than normal, with drowsiness in between sleep states.
Stuporous	profoundly reduced alertness and requiring continuous noxious stimuli for arousal.
Comatose	state of deep, unarousable, sustained unconsciousness آنکھیں نہیں کھولتا تھا
Etiology	
Trauma	H/o fall, RTA , Head Injury
Neurological	Headache, vomiting, fits, neck stiffness Fever with chills, H/O mosquito bite

	Weakness of any part of body , deviation of angle of mouth , ptosis, diplopia Tonic clonic fits , frothing from mouth, urinary or fecal incontinence Hish risk behaviours for HIV , Syphilis
Toxins	Intake of any poison ? زہریلی چیز Any suicidal note found near by?
Metabolic	Cough , sputum , Cyanosis , flapping tremors in hands- Hypoxia, CO2 Narcosis
	Taking any meds for psychiatric illness (Lithium) , H/O Oliguria (SIADH) – Severe diarrhea , vomiting, muscle twitching – Electrolyte imbalance
	Sweating , blurring of vison? BSL at presentation – hypoglycemia Polydipsia, polyuria, abdominal pain , vomiting - DKA
	H/O Jaundice, hemetemsis, malena, abdominal distenson, dragging sensation in left hypochondrium , easy brisibility alongiwth H/O transfusion , surgery, tattooing and other risk factors – Hepatic Encephalopathy
	Periorbital puffiness, frothy urine, oliguria, loin to groin pain, vomiting, itching, chest pain improved on leaning forward – uremic Encephalopathy
Endocrine	Previous hx of heat or cold intolerance, altered bowel habits, weight changes – Hyper/hypothyroidism Skin pigmentation , diarrhea, postural dizziness – Addiosn
Environmental	Found on road in extreme weather condition

APPROACH TO CVA

20-Apr-17 10:10:58 PM

Bio Data: More common in old age , MALE , obese, sedentary lifestyle

PC: ask its detail

- Loss of motor function in half of body i.e. weakness
- Loss of sensory function in half of body i.e. loss of sensation
- Changes in vision i.e. loss of vision or amurosis fugax (آنکھوں کے آگے پردہ آ جانا)
- Changes in ability to speak i.e. aphasia
- Changes in gait i.e. vertigo, staggering gait with vomiting
- unconsciousness
- Sudden severe headache (ICH)

Question	Significance
HOPI	
Risk Factors for stroke : K/C of DM , HTN , Heart disease (IHD i.e. ICMP → Mural thrombus OR valvular heart disease, AF , Rheumatic Heart Disease) , Hyperlipidemia (کولیسٹرول کا مسئلہ) , Hepatitis (R° CLD) , TB, Epilepsy, Asthma family history of these or stroke Smoker? Any history of similar episode in past? **Then PC will be RECUURENT WEAKNESS**	
PC Characteristics : **ODPARA**	
Onset	sudden
Duration	
Progression	complete or partial , Stabilized or progressive ? , maximum at onset or progressed
Aggravating Factors	none
Relieving Factors	none
Associated Symptoms	
Is it stroke? Stroke Mimics	
H/O Fall	Subdural /extradural hematoma
Any H/O fits before weakness or ASOC	Todd's paralysis
H/O headache with photophobia, phonofobia K/C of migraine	Specially in POCS

Any H/O brain tumor	Bleed in SOL
BSL at presentation? Any H/O oliguria or anuria? Any H/O Hepatitis or CLD? Recovery from ASOC without residual focal deficit	Metabolic Encephalopathy
H/O fever, neck stiffness, fits	Meningo encephalitis Brain Abscess
Is it ischemic or hemorrhagic? WHAT IS THE LESION	
In early morning At activity With headache , vomiting , fits, neck rigidity, ASOC High BP at presentation	Hemorrhagic
Thunderclap headache	SAH
At rest, During sleep	ischemic
Is it stroke or TIA?	
Deficit persisted for more than 24 hours?	stroke
Where is the lesion? Territory determination	
Is patient right handed or left handed?	Identify involved territory
Facial deviation to opposite side	Lesion is above brainstem
Territory Determination ….. Where?	
Anterior Circulation Strokes	
• **Hemiparesis , facial deviation to opposite side (crossed hemiplegia)** • **Hemisensory deficit** • **Contralateral hemianopia** (loss of vision in left half . patient will say in left eye if Right MCA involved) … cant see on the weak side • Gaze preference with eyes deviated toward side of infarction • **(آنکھیں بھی کمزور سائیڈ ی مخالف سمت میں مڑی ہوئی تھیں ؟)** • • Motor aphasia • Sensory aphasia • Global aphasia (in dominant hemisphere) • Dysarthria (due to focal weakness) • Unilateral neglect, apraxias • Anosognosia (claims have no weakness), Constructional apraxia, Neglect (in non-dominant hemisphere)	• **Cerebral Hemisphere, Lateral Aspect (Middle Cerebral A.)** Complete MCA affects afce,arm,leg equally (embolic occlusion of stem of MCA) Broca's: occluded the proximal superior division of MCA Wernicke's: occlusion of inferior division of the MCA Global: complete MCA
• **Leg >arm weak** • **Cortical sensory loss over leg** • **Urinary incontinence** • Gait apraxia	**Anterior Cerebral A.)**

• B/L ACA > Abulia (akinetic mutism), slowness, delay, intermittent interruption, lack of spontaneity, whispering, reflex distraction to sights and sounds	
• Symptoms of MCA more common than ACA • H/O recurrent monocular blindness (curtain falls)	**Symptomatic Internal Carotid Stenosis**
POSTERIOR CIRCULATION STROKE	
General symptoms of POCS: nausea, vomiting, vertigo,	
• **Homonymous hemianopia** • **Cortical blindness (loss of vision)** • Memory deficit • Dense sensory loss, spontaneous pain, dysesthesias, choreoathetosis	**Cerebral Hemisphere, Posterior Aspect (Posterior Cerebral A.)**
• Third nerve palsy and contralateral hemiplegia • Paralysis/paresis of vertical eye movement • Convergence nystagmus, disorientation	**Brainstem, Midbrain (Posterior Cerebral A.)**
• Facial paralysis • Paresis of abduction of eye (6^{TH} CN) • Paresis of conjugate gaze • Hemifacial sensory deficit • Horner's syndrome • Diminished pain and thermal sense over half body (with or without face) • Ataxia	**Brainstem, Pontomedullary Junction (Basilar A.)**
• Vertigo, nystagmus • Horner's syndrome (miosis, ptosis, decreased sweating) • Ataxia, falling toward side of lesion لڑکھڑانا • Impaired pain and thermal sense over half body with or without face	**Brainstem, Lateral Medulla (Vertebral A.)** NO HEMIPARESIS… Quadripresis can occur due to Anterior Spinal A. occlusion
Lacunar Syndromes (Small-Vessel Strokes) usually <1cm in diameter (Internal capsule, Basal Ganglia, Thalamus, Corona Radiata , Brainstem)	
• Pure motor hemiparesis of face, arm, and leg • Pure sensory stroke • Ataxic hemiparesis • Dysarthria-clumsy hand • Sensori-motor	internal capsule or pons ventral thalamus pons or internal capsule pons or genu of internal capsule
Risk Factors	
For Ischemic Stroke	
DM, HTN, Previous IHD, Previous Stroke, Smoker, Male gender , Family hx	
Any preceding TIA ???	
	Oral Contraceptive pills
Palpitations	Atrial Fibrillation

H/O fever with joint pains in childhood? Monthly IM Injection?	Valvular Heart Disease / RHD
K/C IHD, CCF, Recent MI	Mural thrombus
Raynaud's Phenomenon, fever, Dyspnea on standing	Atrial myxoma
Fever, palpitations,	IE→ Embolization
Congenital Heart disease , Leg swelling, IV Drug abuser, trauma (fat embolism)	PFO
Sudden pain in neck before stroke	Arterial dissection
Pain abdomen after eating meal	Mesenteric ischemia
Pain in leg on walking	Intermittent claudications
Ever got lipid profile? Family Hx?	
Recurrent pregnancy loss? DVT , Sudden painful abdominal distension? Previous Hx of weakness? Fits? Cola colored urine in morning Anemia with jaundice?	Prothrombotic State i.e. Protein C,S,Antithrombin III deficiency, Factor V Leiden mutation, APS, Polycythemia vera, ET, TTP,PNH Behcet's Disease Sickle cell
Connective tissue, vasculitis , rheumatic profile	SLE, PAN,Wegner,CSS Sjogren, Behcet, Takayasu, Giant Cell
For Hemorrhagic Stroke	
k/c CLD, ITP	
Elderly with poor cognition (amyloid angiopathy)	
H/O Bleeding or bruising	
H/O Anticoagulants	
Alcoholic	
Weight loss, cough sputum	CA Lung mets, renal cell CA
Treatment & complications during Hospital stay?	
CT Done?	
If presented within 4.5 hours , TPA Given?	
Aspirin given?	
Cough , choking , fever	Aspiration , pneumonia
Leg swelling	DVT
Fits after admission , oliguria	SIADH
Sudden SOB , chest pain	PE
Fits	
Ulcers on back	
Constipation ? how passed urine & feces?	
Barthel Index (10 variables)	
Presence or absence of fecal incontinence	
Presence or absence of urinary incontinence	
Help needed with grooming (shaving , combing)	

Help needed with toilet use	
Help needed with feeding	
Help needed with transfers (e.g. from chair to bed)	
Help needed with walking	
Help needed with dressing	
Help needed with climbing stairs	
Help needed with bathing	
PAST HX	
Details of DM,HTN ,IHD if present	
Drug & TREATMENT History	
Family hx	
Risk factors, premature IHD/Stroke	
Menstrual hx	
Recurrent pregnancy loss	
Socioeconomic hx	
Personal hx	
Do you drink alcohol? smoker? IV Drug abuse	
Cocaine abuse	
Risk factors for HIV transmission: Illicit sexual contact,	
Travel abroad	

PHYSICAL EXAMINATION

GPE	
Look	
Pulse	Atrial fibrillation Check all pulses
Brachial BP	
R.R.	
Axillary Temp	
Nails	Peripheral stigmata of IE
Hands	Xanthoams
Arms	IV Needle marks for HIV
Axilla	Lymph Nodes (TB, Lymphoma)
Scalp	
Face	Facial deviation , 7th CN
Eyes	Xanthelasma, arcus, Cranial nerves in brainstem exam Fundoscopy
Perioral	
Oral	Tongue, Gag, Palatal reflex,
Neck	Jvp
Sternum	
Inguinal	
Legs	Pedal edema (CCF > Embolism)
Feet	Bed sores
Skin	
Bones & Joints	
CNS	
Higher mental	GCS , Orientation
SOMI	
Cranial Nerves	
Motor system	
Cerebellum	
Sensory	
Gait	
CVS	

Apex beat	Displaced (cardiomyopathy), Murmurs JVP Atrial Fibrillation
Respiratory	
	For aspiration pneunomina Any evidence of IE embolism
GIT	
	Tender liver (budd chiari)
	Percuss bladder if no catheter
Stand up	
Gait	
Postural Drop	

Are there features to suggest underlying autonomic neuropathy or collagen-vascular disease in the pupils, orthostasis, skin, hands, or joints?

Rare Causes:

1. Fibromuscular dysplasia
2. Moyamoya disease
3. CADASIL
4. Primary CNS Vasculitis
5. Waldenstorm macroglobulinemia
6. Homocystinuria
7. Fabry Disease
8. MELAS

Investigations

Test	**To see**
Specific	
BSL	
ECG	
CT Brain Plain	
MRI Bran diffusion weighted, MRA (can be done without contrast)	

Lipid Profile	
Carotid Doppler	
CT Angio/MR Angio	
Echocardiography (TTE, TEE)	
24 hour Holter	If C/O palpitations to rule out A.fib
General	
CBC	**Anemia** (Occult GI bleed… increased risk of bleeding by antiplatelets) Leukocytosis (aspiration , endocarditis) Paltelets (<1 lac … cnt give TPA)
PT,APTT	For TPA (INR>1.5 contra for TPA)
Cardaic Enzymes	Sexondary to silent MI
LFTs	DCLD ..increased bleeding risk
CXR	
In Stroke in Young	
Tests for Prothrombotic state	Anticardiolipin antibodies, lupus anticoagulant Factor V Leiden , Prothrombin gene mutation Protein C, Protein S, Anti Thrombin III Levels Homocystine levels
Secondary Vasculitis	Anti ds DNA c-ANCA , p-ANCA (Wegner , Churg strauss) ESR , CRP(Giant cell)
Toxicologic Screen	Cocaine, amphetamine, Heroin
CSF	Meningitis, Syphilis
TPHA, VDRL	Sphilis
Anti HCV , Cryoglobulins	Cryoglobulinemia
Anti HIV	HIV

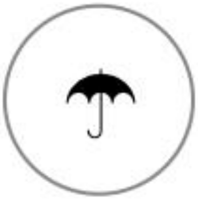
Treatment

1. tPA,
2. Aspirin OR Clopidogril , Aspirin+Dipyridmaol
3. General : NG, Folley, bowel,bed sores, Feeding, DVT Prophylaxis clexane 40mgSC OD
4. Rehibilitation : occupational ,speech, physiotherapy
5. Depression
6.

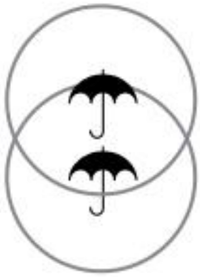
Diplopia

Causes of Binocular diplopia (Diplopia on looking with both eyes but not when looking with one eye)

1	Orbital disorder	Trauma, mass or tumor (pseudotumour), infection (cellulitis), thyroid-associated ophthalmopathy
2	**Extraocular muscle restriction**	Thyroid-associated ophthalmopathy, mass or tumor, extraocular muscle entrapment, extraocular muscle injury or hematoma due to ocular surgery
3	**Extraocular muscle weakness (Congenital)**	Congenital myopathies, mitochondrial myopathies, muscular dystrophy
4	**Neuromuscular junction dysfunction**	Myasthenia gravis, botulism
5	**Palsies of the third, fourth, or sixth cranial nerves (any location)**	Ischemia, hemorrhage, tumor or mass, vascular malformation, aneurysm, trauma, meningitis, multiple sclerosis
6	**Brain stem injury to cranial nerve nuclei**	Stroke, hemorrhage, tumor or mass, trauma, vascular malformation
7	**Supranuclear injury (pathways to and between cranial nerve nuclei)**	Stroke, hemorrhage, tumor or mass, trauma, multiple sclerosis, hydrocephalus, syphilis, Wernicke's encephalopathy, neurodegenerative disease

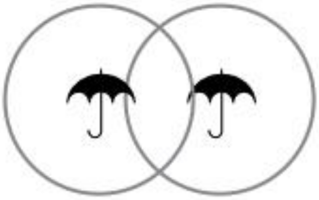


Single image seen by both eyes together



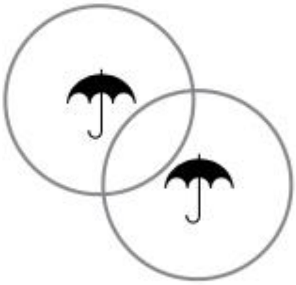
Up-and-down double vision

(Vertical diplopia)



Side-by-side double vision

(Horizontal diplopia)



Combined side-by-side and up-and-down double vision

(Oblique diplopia)

Approach

PC: Diplopia

HOPI: ODPARA

Is it binocular?	Binocular …. Neurological Monocular …. ophthalomogical
Diplopia character	Horizontal …. Medial or lateral recti control/movement Oblique …. Vertical Diplopia … Inf. & sup recti, inf & sup oblique Oblique … combination of Inf. & sup recti, inf & sup oblique
In which gaze direction images are MAXIMUMLY separated	if a horizontal, binocular diplopia is worse in left gaze, then either the left eye cannot fully abduct (eg, from a left sixth nerve palsy) or the right eye cannot fully adduct (eg, from a right intranuclear ophthalmoplegia).
Where is lesion?	
Orbital disorder	Changes in appearance (eye swelling etc) , periorbital edema,
Extraocular muscle restriction	Recent orbital surgery, trauma , Eye pain, Thyroid symptoms
Extraocular muscle weakness	Myopathy : proximal weakness in limbs, family Hx (Myotonia) Polymyotistis & deramto NEVER involve eye muscles
Neuromuscular junction dysfunction	Fluctuating weakness with diurnal variation Absent in morning , worse in evening ptosis

Palsies of the third, fourth, or sixth cranial nerves(any location)

Location	Causes	History	Examination
Superior orbital fissure	Cellulitis, tumor or mass, TAO	Eye pain, change in appearance of orbit	Proptosis, combination of 3rd, 4th, and 6th n. palsies
Cavernous sinus	Infection, carotid artery aneurysm, cavernous carotid arterial venous fistula, inflammation, tumor, mass	Same as orbit	Same as orbit with or without proptosis, plus **Horner’s syndrome***; 6th n. commonly first involved
Subarachnoid space	Aneurysm, hemorrhage, meningitis due to infection or cancer, hydrocephalus	Headache, nausea and vomiting, recent trauma, constitutional symptoms, hearing loss	**Isolated palsies** are often localized here; if 3rd n. palsy due to compression, then pupil typically

			involved; 6th n. palsy with IpsiLatera; hearing loss SOMI+ve
Brain stem	Stroke, hemorrhage, tumor or mass, trauma, vascular malformation, inflammation, multiple sclerosis	Rapid onset, dysarthria, vertigo nausea, facial and extremity weakness or numbness, hearing loss, dysmetria, ataxia, altered mentation	3rd n./midbrain: CL extremity weakness, CL tremor, CL dysmetria 4th n./midbrain: IL or CL (dependent on nuclear or fascicular injury) APD, INO, Horner’s syndrome. 6th n./pons: IL 7th n. palsy, IL INO, IL horizontal gaze palsy

Mononeuritis/ multiplex	Diabetes, Sarcoidosis, Vasculitis (giant cell : jaw claudication)
Brain stem injury to cranial nerve nuclei	Associated other symptoms e.g. other cranial nerves, long tract signs
Supranuclear injury (pathways to and between cranial nerve nuclei)	Stroke, tumor,

What is the lesion?
Ask about causes of lesions which is at the expected site?

Any change in eye appearance?	Superior orbital fissure, Cavernous sinus thrombosis
Headache, Neck stiffness	SAH
Weakness of part of body	Brianstem
DM	
Vasculitis	
Sarcoidosis	
MS	
Stroke risk factors	

Examination of Cranial Nerves 3, 4, 6 for Diplopia:

Definition of diplopia: Seeing 2 separate images of the same object in visual space
Approach:

1. **Determine if diplopia is monocular or binocular:**

a. Cover one eye at a time and see if diplopia persists with only one eye open – if it does it is monocular diplopia

i. Ddx: refractive errors, abnormalities of cornea, lens, cataracts; psychogenic (conversion disorder, Munchausen); central cause
(rare – usually polyopia present) ⍰⍰ophtho referral

b. If diplopia only present with both eyes open = binocular

2. **Once you determine it is binocular (and assuming normal acuity and fields)**

a. Look for clues to the etiology with INSPECTION

- i. Bony abnormalities – trauma (#, hematoma, edema)
- ii. Soft tissue abnormalities – periorbital soft tissue infection, infiltration (amyloid), proliferation (GRAVES disease) causing proptosis
- iii. Ptosis - Consider Myasthenia Gravis or 3rd nerve palsy if you see ptosis associated with diplopia
- iv. position of the eye and head:
    1. Pupil down and out 3rd nerve palsy
    2. Head tilt away from side of 4th nerve lesion; hypertropia of eye

b. Examination of the pupils:

- i. Pt. looks at an object at intermediate distance
- ii. Examine pupils for size, shape, equality
- iii. Test the direct and consensual light reflex (relies on CN 2 afferent limb and CN 3 for the efferent limb)
    1. DM pupil: reduced SNS small, poor dilation in dark;
    reduced PNS sluggish rxn to light
    2. Full 3rd nerve: dilated pupil with partial ptosis
    3. Argyl Robertson: small at rest, accommodates to near but doesn't respond to light (DM, neurosyphilis, neurosarcoid, Lyme)
    4. Tonic Pupil: unilateral, dilated, not responsive to light (trauma, Zoster, idiopathic = Adie's Pupil)
- iv. Test accommodation to near focus
    1. Start 30 cm away and come toward nose
    2. Should converge and constrict
    3. Focus = smooth m. of ciliary body stim'd to change shape of lens (convex), and pupil constricts (both mediated by parasympathetic component of CN 3)
    4. Inability to implies midbrain lesion

c. Eye Movements:

i. Voluntary movements up down right left – gross abN's

ii. Hat pin 30 cm from face in “H”
iii. Pt to say when 2 images present, and when max separation
iv. 2 images side by side? Or on top of eachother?
v. **Cover one eye: does outside (further) image go away?**
1. If YES, the covered eye is the one with the problem
2. If NO, cover the other eye and outside image should go away.
vi. Determine which muscle is in use (in the affected eye)
vii. Which nerve supplies that muscle

CN Palsy’s:

Full 3rd nerve: dilated pupil with ptosis, ophthalmoplegia, and resting position of pupil is down and out and unreactive to direct light and accommodation

Trauma (ipsilat brainstem herniation), idiopathic

Central causes: vascular lesions or tumor in the brainstem

Peripheral causes: compressive lesions (PCom aneurysm, tumor, meningitis, orbital lesions **(tolosa-Hunt syndrome = painful lesions of CN 3,4,6 and V1 in superior orbital fissure**)), and ischemia or infarct (arteritis, DM, migraine)

Partial 3rd nerve: usually seen with DM (ischemia) – pupil spared

* pupillomotor fibers travel at periphery – in ischemia, they are spared. In compression they are first hit.

4th nerve: superior oblique – ask pt to look in and down. May observe head tilt away from lesion.

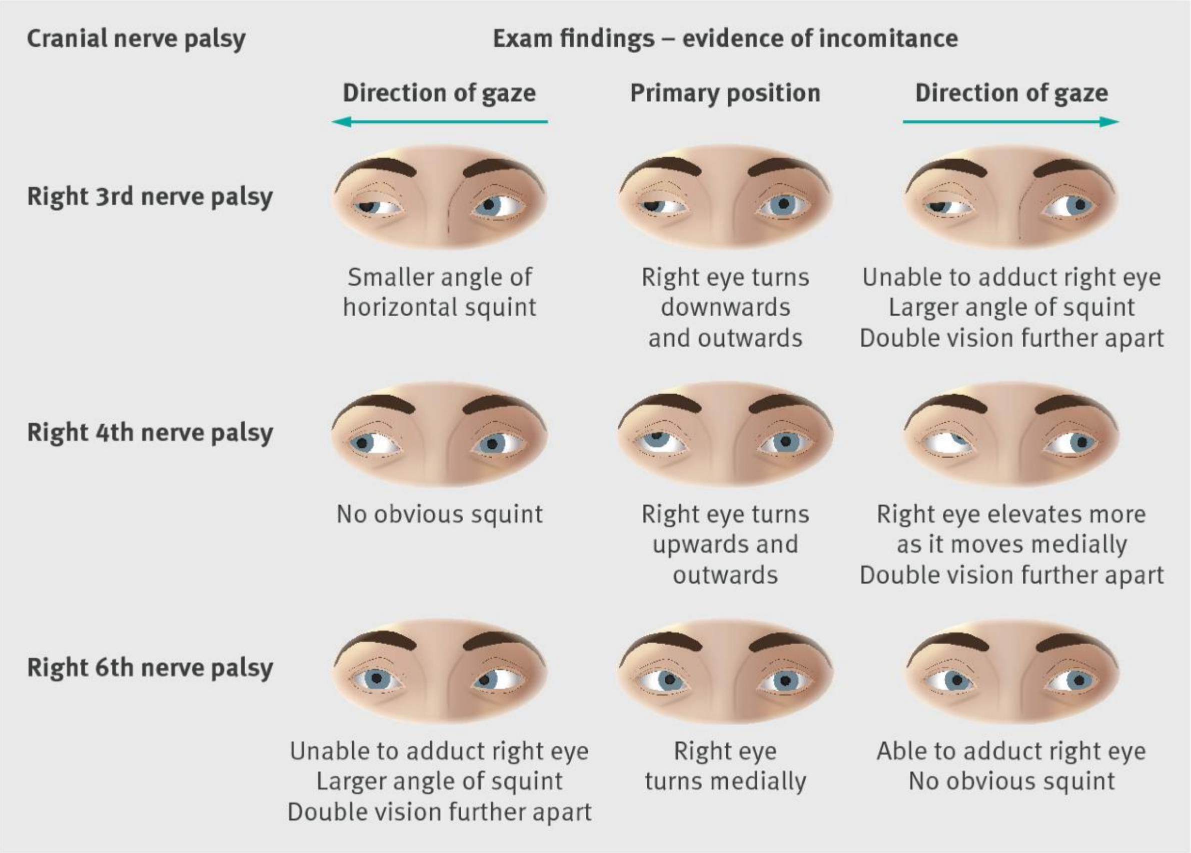
Isolated lesion rare – usually trauma or idiopathic

6th nerve: failure of lateral movement, convergent strabismus)=squint) (MR takes over), and diplopia worse on lateral gaze.

Bilateral lesions: trauma, Wernicke’s, mononeuritis multiplex, increased ICP Unilateral lesions: trauma, idiopathic, central (vascular lesion, tumor), or peripheral (DM)

Internuclear Ophthalmoplegia: lesion of the MLF which is responsible for conjugate lateral gaze. **See jerky nystagmus of the abducting eye, and inability of the other eye to adduct.** There is normal accommodation proving that CN 3 is in tact (MR). #1 cause MS. In the elderly = vascular disease.

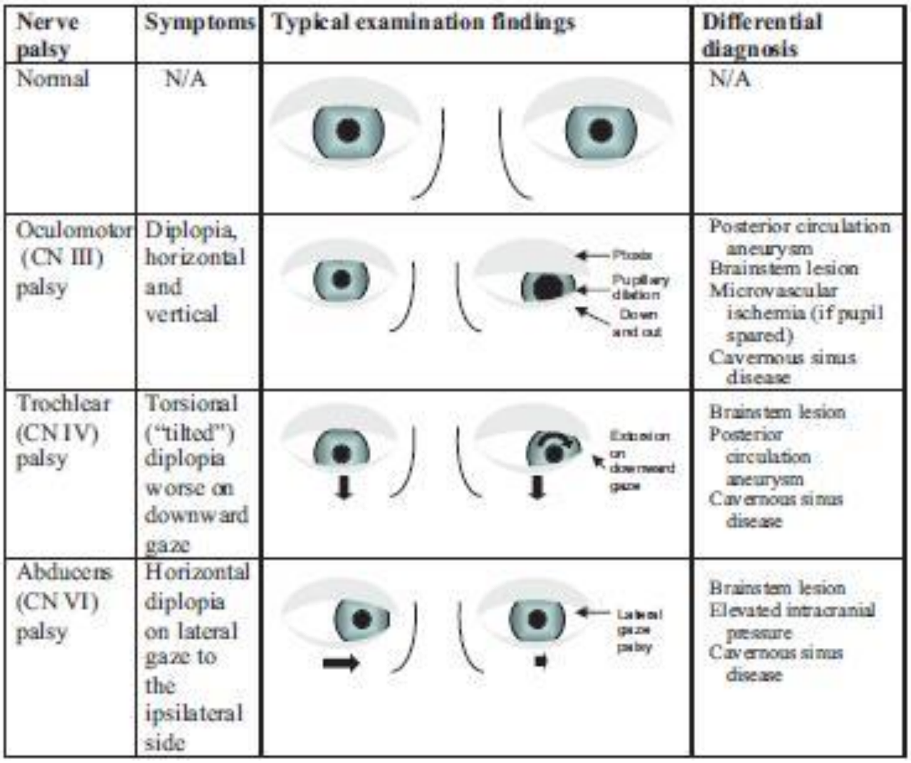
(left frontal area right 6th nerve nucleus MLF to left 3rd nerve nucleus



Cranial nerve palsy	Exam findings – evidence of incomitance		
	Direction of gaze ←	Primary position	Direction of gaze →
Right 3rd nerve palsy	Smaller angle of horizontal squint	Right eye turns downwards and outwards	Unable to adduct right eye Larger angle of squint Double vision further apart
Right 4th nerve palsy	No obvious squint	Right eye turns upwards and outwards	Right eye elevates more as it moves medially Double vision further apart
Right 6th nerve palsy	Unable to adduct right eye Larger angle of squint Double vision further apart	Right eye turns medially	Able to adduct right eye No obvious squint

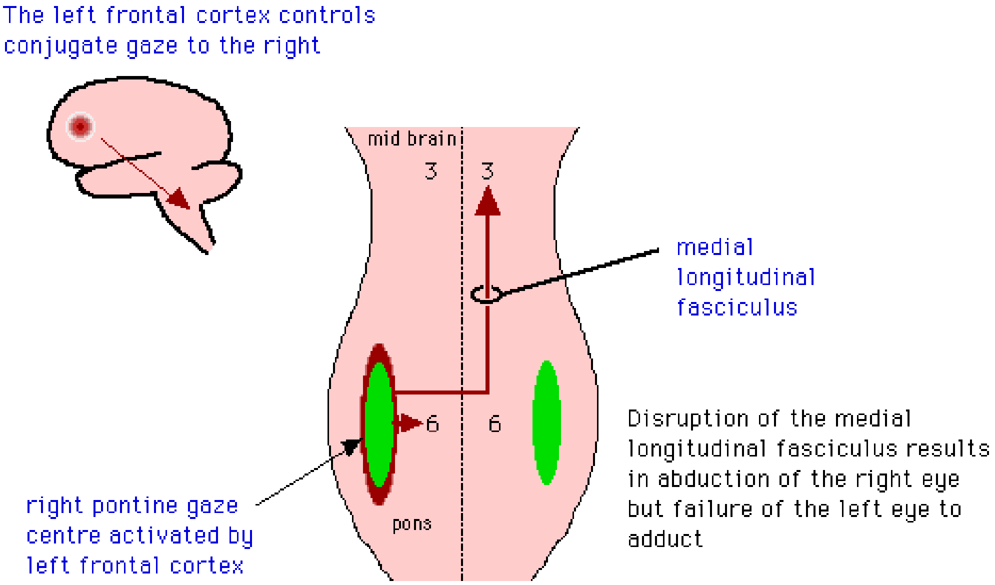
Interpretation of incomitance (that is, angle of squint varies with direction of gaze)

Table 4. Symptoms, Examination Findings, And Differential Diagnoses In CN III, IV, And VI Palsies



Nerve palsy	Symptoms	Typical examination findings	Differential diagnosis
Normal	N/A		N/A
Oculomotor (CN III) palsy	Diplopia, horizontal and vertical	Ptosis Pupillary dilation Down and out	Posterior circulation aneurysm Brainstem lesion Microvascular ischemia (if pupil spared) Cavernous sinus disease
Trochlear (CN IV) palsy	Torsional ("tilted") diplopia worse on downward gaze	Extorsion on downward gaze	Brainstem lesion Posterior circulation aneurysm Cavernous sinus disease
Abducens (CN VI) palsy	Horizontal diplopia on lateral gaze to the ipsilateral side	Lateral gaze palsy	Brainstem lesion Elevated intracranial pressure Cavernous sinus disease

Anatomy of a right internuclear ophthalmoplegia


mid brain
3
3
medial longitudinal fasciculus
6
6
pons
right pontine gaze centre activated by left frontal cortex

The left frontal cortex controls conjugate gaze to the right

Disruption of the medial longitudinal fasciculus results in abduction of the right eye but failure of the left eye to adduct

Approach to GBS

PC: Ask for detail

HOPI: ODPARA

Onset	Acute , subacute
Duration	>8-9 weeks is CIDP
Detail of weakness	Symmetrical , flaccid Weakness started from lower limbs … legs felt rubbery (Harrison) Ascended upwards , involving arms He can hold neck With associated Facial drooping , Difficulty in swallowing , Can't handle his secretion (keeps tissue in hands) , coughing, choking He has diplopia and drooping of eyelids (can involve pupil) He cant move his eyes (in which direction) Difficulty in speaking … slurred speech Difficulty in breathing (involvement of respiratory muscles) , cyanosis He sways while standing/sitting with unable to move eye (Miller Fischer) Any H/O altered state of consciousness
Progression	Initially mild , became severe and is has reached a plateau in three days
Associated sensory features	C/O pins and needles in feet (distal parts) (Proprioception more affected than pain) pain in neck , shoulder, back or diffuse over the spine (Harrison)
Symptoms of Dysautonomia	Palpitations Dizziness on standing Facial flushing Sweating Urinary or fecal incontinence (v late feature)
Preceding Risk Factors	**In last 03 weeks ,** C/O RTI (Cough, sputum) Flue (influenza like illness) c/o diarrhea Vaccination (influenza) Others : SLE , Hodgkin Lymphoma, HIV , Surgery Viral : CMV, EBV, HIV,HBV,HCV, …. Bacterial: C. jejuni , mycoplasma
Rule out DDx	1. **Acute Myelopathy :** trauma to spine , early urinary or fecal incontinence , Loss of sensation , sensory level 2. **Diphtheria :** sour throat , hoarseness of voice, lymph nodes in neck 3. **Polio** (fever , neck rigidity) 4. **Acute intermittent porphyria** (Pain abdomen , constipation , siezures, psychosis, Family hx) 5. **Polyarteritis Nodosa** (rash, weakness of any part of limb) 6. **Toxic** (Organophosphate , Chronic Lead)

	7. **Botulism :** descending weakness, intake of improper food (pupillary reflex lost early) 8. **Bites :** snake bite, tick bite 9. **Myasthenia , Lambert Eaten :** fluctuating weakness 10. **CMV Polyradiculopathy in HIV :** Risk factors of HIV 11. **Dermatomyositis, Polymyositis : pain and tenderness in muscles** 12. **Periodic Paralysis** (preceded by exercise , carbohydrate)
ADL	
Past Hx	
Treatment Hx	Plasma exchange , IVIG , Improvement, needed vent
Family Hx	
Personal	
Socioenonomic	
Investigations	
NCS	
LP	
LFTs	Derranged AST,ALT upto 500
Spirometry	
Antiganglioside antibodies	Anti GD1,Anti GM1 Anti GQ1b in Miller Fischer Syndrome
Cause	Serological Tests for : C. Jejuni, EBV,CMV,H. Influenzae Stool Culture : C.Jejuni, polio Anti HIV CSF ACE, CXR (Sarcoidosis) CSF VDRL : Syphilis
Treatment	
Disease Modifying	IVIG, PE
Ventilation	
Supportive	DVT, Bed Sores, Chest Physio, Bladder, Bowel, Feeding

Myasthenia Gravis

PC: Weakness , Ptosis

HOPI:

Weakness	ODPARA More proximally then distally Fluctuating	
Aggravated by	Weakness worsens with activity, in the evening Drugs (aminoglycosides/gentamycin)	Fatigability
Relieved by … can use full power	Rest, Fresh In the early morning on waking Cold? Putting ice on eyelids	
Extent	Legs? Arms? Can hold Neck?	
ocular	diplopia , drooping of eyelids	
Bulbar	Change in voice , speech problem	Dysarthria, Dysphonea
	Dysphagia: Choking, chewing problem (cant chew meat)	Pharyngeal muscles
	Facial expression	Facial nerve
Respiratory	Difficulty breathing, Recurrent infections due to aspirations	
Past Hx	H/o difficult recovery from anesthesia	
Rule out DDx		
LEM	Power improved with activity Cough, hemoptysis, weight loss	SCLC
Botulism	Intake of improper canned food Descending paralysis	
Drug induced MG	Started any new drug recently? Penicillamine Gentamycin (aminoglycosides)	
Precipitating Factors of Crisis		
Infection		
Hyperthyroidism	Worsens MG	
New Drugs		
Associated Autoimmune Conditions		
Thyroid	Neck swelling, heat/cold intolerance	Hashimoto, Garves
	Joint pains, Photosensitivity	RA,SLE
		DM

H/O conditions which may interfere with Treatment		
	DM, TB,ASTHMA,HTN	
	Peptic ulcer, GI Bleed	

Examination

Look at the face & relevant		
Name	Nasal voice	
Ptosis	Complete , partial , unilateral or bilateral with or without pupil involvment	
2n Nv	Visual acuity, light reflex,accomodation	
3rd,4th,6th Nerve	diplopia	
Persistent upward gaze	Ptosis /.Diplopia on persistent upward gaze Wrinkling on forehead to compenate	
Facial Nerve	Eyelashes not buried Fill air in mouth Smile : Snarling face Show me teeth	
Count till 100		
Jaw supporting sign	Jaw hangs , patient supports chin by hand	
flex the neck	Raise or force against my hand	
Fatigability at deltoiod	Adduct/abduct shoulder 10-15 times and compare	
Percuss for thymoma		
Chest expansion		
Limbs exam	No wasting Proximal weakness Reflexes intact Sensation Normal (associated DM can cause peripheral neuropathy)	
	5 min forward arm abduction	
Examine for Assocaited autoimmune diseases (in 10%)		
Diabetes	Vibration/pin prick	
Thyroid	Goiter, tachycardia,tremor Bradycardia, slow relaxation of reflexes	
Vitiligo		
SLE	Malar rash, oral ulcers	
RA	PIP Joints	
Pernicious Anemia	Pallor, peripheral neuropathy	
Treatment effects		
Steroid	Cushing’s , BP, Catarcat, Striae	

Description in short Case

- Examination of eyes of this patient revealed bilateral asymmetrical partial **ptosis** which is accentuated by sustained upgaze .There is furrowing of the forehead to compensate for this weakness.
- There is weakness of the oculomotor muscles with variable strabismus and diplopia.
- There is **bilateral facial muscle weakness,** with lack of facial expression' and a horizontal smile (myasthenic snarl).
- There is jaw weakness and the jaw hangs open. There is weakness of the neck muscles. The patient sits with the hands under the chin co support the weak jaw and neck (jaw supporting sign)
- **The voice** Is weak with a nasal twang, and with prolonged vocalization, the speech becomes less distinct and more nasal
- Neck flexion is weak
- **On examination of the limbs**. there is proximal weakness with fatigability. There is no wasting. Deep tendon reflexes are normal. The sensation is normal.

  On further extension of the examination,

  - No clinical evidence of thymus enlargement
  - Chest expansion is 5cm
  - Pulse is 72/min 9(no brady no tachy), no goiter
  - No peripheral neuropathy (DM, B12)
  - No Vitiligo
  - No evidence of iatrogenic cushing’s

Investigations

1. EMG/NCS
2. SFEMG : increased jitter
3. Edrophonium Test/ tensilon Test
4. Ice Pack test
5. Antibodies
    i. Anti -ACHR
    ii. Anti MUSK
    iii. Anti LRP4
    iv. Anti Agrin
6. CT Chest for thymoma
7. PFTs
8. ABGs
9. Rule out precipitating / worsening causes
    i. Infections : CBC, CXR,Urine C/E
    ii. TSH
    iii.
10. Test for Associated Autoimmune conditions
    i. RA
    ii. ANA
11. For Treatment
    i. IGRA/PPD
    ii. BSL
    iii. DXA Scan

,

Treatment

1. Admit
2. ABC
3. Pulse Oximetry
4. Send Baseline, ABGs

Specific:

1. Anticholinergic Drugs : Pyridostigmine
2. Immunosuppression :
    1. Cyclosporin
    2. Tacrolimus
    3. Mycophenolate
    4. Azathioprine
    5. Rituximab
    6. Cyclophosphamide
3. Thymectomy age 18-55 , generlised MG
4. Crisis : Plasma Exchange , IVIG

Quadriparesis

Etiology

Electrolyte disturbances	hypokalaemia, hyperkalaemia,
Cord lesions	Acute: Transverse Myelitis Ischemic or traumatic cord lesions Chronic: Cervical Myelopathy Syringomyelia MND
Neuropathies	AIDP/GBS CIDP >9 weeks
NMJ Disorders	Myasthenia Gravis LEM
Muscle disorders	Myopathies
Systemic envenomation	Snake bite Tick paralysis Scorpion sting bite

Approach

PC;

HOPI: Ask its details

Onset	Sudden , gradual
Duration	Acute , chronic
Progression	Sudden complete? Ascending (GBS) Descending? Equally involving proximal and distal?
Involvement	Legs? Arms? Neck? Facial deviation? Dysphagia Nasal regurgitation Dysarthria (change in voice) , Difficulty in chewing (/MNDMG) Diplopia? Ptosis? Vision? Urinary or fecal incontinence (early or late) Difficulty in breathing
Associated features for DDx	
Cord lesions	Sensory involvement with level, Early sphincter control loss
MG	Fatigability
Trauma	Trauma , RTA, surgery of neck/spine
Neck pain/back pain	Vertebral collapse
Mets/malignancy	Tumour, weight loss, bone pains, lymph nodes
Trasnverse Myelitis	Whole systemic review (Infections, CTDs, Vasculitis)
Periodic paralysis	Recurrent, dehydration, after heavy sugar intake
Myopathies	Proximal weakness , difficulty in standing from sitting position
Syringobulbia	Vertigo, deafness Facial sensory loss, Horner’s , painless burns
CIDP	Sudden weakness , >9 weeks, pins and needle in feet
Envenomation	Snake bite
ADL	
Invest	CT,MRI,LP,Xray, EMG/NCS, Muscle biopsy
Rx	Drugsm surger, NG, Follley,

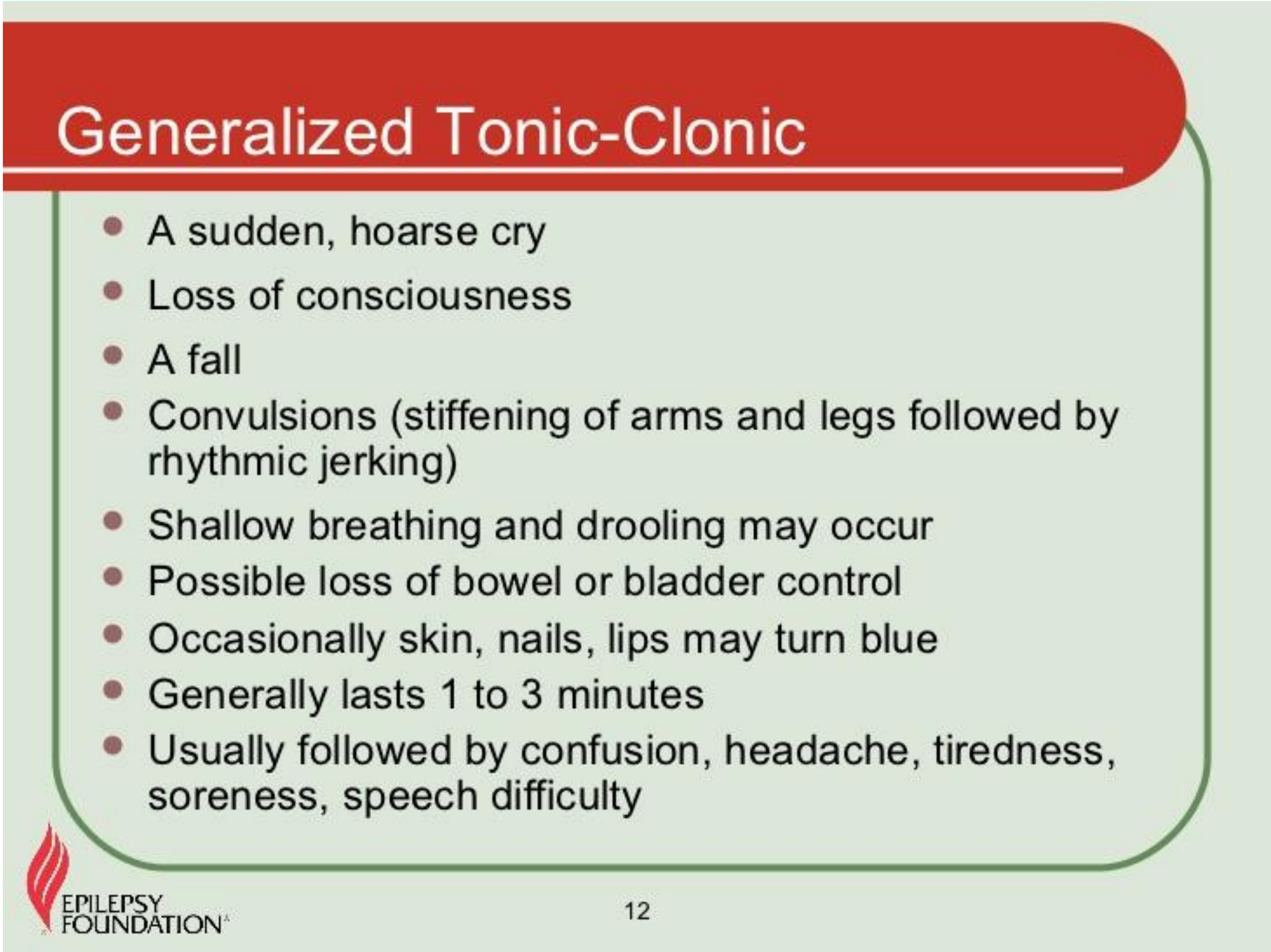
Seizures

Etiology

Epilepsy	Recurrent, unprovoked seizures
Common structural causes	CVA, Traumatic brain injury, subdural hematoma, SAH, Brain abscess, meningitis, encephalitis
Provoked seizures	Alcohol & drug withdrawal
	Drug intoxication
	Hyponatremia, hypernatremia
	Hypomagnesium
	Hypocalcemia
	Hypoglycemia
	Nonketotic hyperglycemia
	Uremia
	Hypoxia
	Hyperthyroidism
	Dialysis disequilibrium syndrome
Other	AIP Withdrawl syndromes Tuberous sclerosis
Drugs	Cocaine, amphetamines

Approach

Features of Generalized seizures



Generalized Tonic-Clonic

- A sudden, hoarse cry
- Loss of consciousness
- A fall
- Convulsions (stiffening of arms and legs followed by rhythmic jerking)
- Shallow breathing and drooling may occur
- Possible loss of bowel or bladder control
- Occasionally skin, nails, lips may turn blue
- Generally lasts 1 to 3 minutes
- Usually followed by confusion, headache, tiredness, soreness, speech difficulty

EPILEPSY
FOUNDATION

History Taking in Known Diabetics

HOPI:

Known Diabetic since when…. If T2DM >5 Years, needs screening for complications What were complaints at that time Any tests done at that time?	Confirmation of Type 1 or 2
Dietary habits ? how many times? Exercise? Ever tried to loose weight?	Non pharmacological measures
Initially started on which medications? How medications changed over time? Was BSL controlled with tablets?	T1DM is not controlled with tablets
Taking which medicine now a days? Dosing? Compliance? Daily? Injects insulin where? Side effects of drugs? Need to change drugs?	Uncontrolled, CKD
Insulin Ever advised by Dr? Injects himself? Where? Side effects at injection site?	Insulin
Glucometer at home? How frequently checked? Daily? By Self or others? Fasting? Pre prandial Random? Post prandial **Any HBA1C record? LAST VALUE**	Glycemic control?
Any hypoglycemic episodes self-treated, needed help, came to hospital H/O sweating, tremors, palpitations before hypoglycemia کیا آپ کو پتا چل جاتا ہے کہ میری شوگر کم ہو رہی ہے؟	Severity Hypoglycemia awareness
Ever became ASOC with High BSL?	Hyperglycemic complications

SCREENING OF DIABETES COMPLICATIONS	
Macrovascular Complications	
Known case of IHD? Pedal edema, orthopnea, PND, Diplopia, ptosis	IHD CCF Monoceuritis
H/O weakness of any part of body, aphasia,	CVA, TIA
Pain in legs on walking? Have to stop? Changes in colour of fingers / toes?	Peripheral Arterial Disease
Microvascular Complications	
Retinopathy:	
Any spots in vision? آنکھوں کے سامنے دھبے تو نہیں آتے؟ Decreasing visual acuity? نظر کم تو نہیں ہو گئی؟ Blurring of vision دھندلا نظر آتا ہو؟ Any H/O appearance of a curtain over the field of vision Ever got checkup from ophthalmologist? Frequently? What he told? Any H/O Laser? intra Vitreal injection?	cataract Retinal Detachment
Nephropathy:	
Frothing of urine? Periorbital puffiness? Swelling on body? Ever got RFTs? How frequently? result? Ever consulted any nephrologist? If deranged RFTs, underwent HD?	
Neuropathy:	
H/O of Numbness, tingling, pain in fingers or toes Pins and needles in hands only	Sensory Neuropathy Carpal tunnel
Weakness of legs ? loss of bulk? پٹھے سک گیے نے ؟ Pain in thighs and weakness (proximal myopathy)	Motor weakness Diabetic Amyotrophy
Postural hypotension Gastrointestinal problems (gustatory sweating, early satiety, altered bowel habit; diarrhea alternating with constipation, Nocturnal diarrhea Palpitations	Autonomic neuropathy Cardiac autonomic

Other complications	
Foot Disease:	
Past H/O ulcer on feet or burn? Treatment?	LOPS
Ever shoes got off and did now know he was bare footed?	
Can feel any pressure on feet or not?	
Changes in shape of joints?	
Which type of shoes he uses?	
Does he checks feet daily in mirror like face?	
Does he check shoes for pins etc before wearing?	
Dermatological Complications	
Oral candidiasis	
Genital candidiasis	
Bullae, boils,	
brown lesions on legs	Diabetic Dermopathy
Ear discharge	Otitis externa
Change in skin color and texture in axilla	Acanthosis Nigricans
Raised Skin lesions	Eruptive xanthomas
Reddish spots	Necrobiosis lipoidica
Musculoskeletal Complications	
Painful shoulder join	Frozen shoulder
Can you oppose both hands	Cheiroarthropathy
Flexion deformity of ting finger & little finger	Duputyrian Contracture
Miscellaneous:	
Nocturia	
Urinary incontinence	
Erectile dysfunction	
Fever, night sweats	Increased risk of pulmonary TB
ADDRESSING OTHER ASCVD RISK FACTORS	
H/O HTN, Smoking	
Ever got fasting lipid profile	

New Patient (Not a known Diabetic)

HOPI: Any H/O

Polydipsia,Polyuria,Polyphagia

Weight Loss (in type 1 mostly) .. >5% , Weight gain (in type 2)

Nocturia

Fatigue, weakness

Blurred vision (major changes in BSL over days or weeks can cause)

delayed or slow healing of even minor injury/trauma

frequent superficial infections and skin problems such as Oral and genital *candidiasis*, fungal infections of skin etc.

any h/o altered state of consciousness

Mood change, irritability, difficulty in concentrating, apathy

Family History:

DM, HTN , IHD, CVA

DIET AND LIFESTYLE HISTORY:

For management of diabetes mellitus

Regularity of meals	three meals a day is ideal
Content of fatty/greasy foods	Discourage saturated (animal) fats, as this type of fat is linked to heart disease
Content of fruit and vegetables	at least five portions a day are recommended
Content of sugar and sugary foods	avoid carbonated drinks, cakes, sweets and biscuits
Content of salt	-a high salt intake can lead to hypertension
Alcohol intake	a maximum of two units of alcohol per day for a woman and three units per day for a man.

ASSESSMENT OF OTHER CARDIOVASCULAR RISK FACTORS :

IHD, HTN, Dyslipidemia, CVA

previous vascular disease (cerebro-, cardio- or peripheral vascular) should be noted.

History regrading Complications :

Examiantion in a Diabetic Patient

(can be DKA,HONK, Hypoglycemia)

GPE:

Pulse: resting tachycardia
B.P: Blood pressure - erect and supine
R.R.: Kussmaul breathing
Temp
Smell of acetone
Patient weight
Height
BMI
Injection sites
--Examine all systems
Basal Crepts- for heart failure

Special Examination for Complications

1-Skin:

diabetic dermopathy (brown macules on the lower legs that heal to form atrophic, shiny white scars)

2-Retinopathy:

Fundoscopy

Diabetic Neuropathy

Types:

A-Somatic :

1-Polyneuropathy

i- Symmetrical Distal sensory polyneuropathy

Symptoms:

1-Paraesthesiae in the feet (and, rarely, in the hands), 2-Pain in the lower limbs (dull, aching and/or lancinating, worse at night, and mainly felt on the anterior aspect of the legs),

3-Burning sensations in the soles of the feet,

4- Cutaneous hyperaesthesia

5-Abnormal gait (commonly wide-based), often associated with a sense of numbness in the feet.

Signs:

1-diminished perception of **vibration** sensation distally,

2-**'glove-and-stocking'** impairment of all other modalities of sensation,

3-**loss of tendon reflexes** in the lower limbs.

4- **wide-based gait**

5-The toes may be **clawed** with wasting of the interosseous muscles, increased pressure on the plantar aspects of the metatarsal heads with the development of callus skin at these and other pressure points.

5- foot ulcers

6-Charcot neuroarthropathy

ii- Asymmetrical motor diabetic neuropathy- mostly proximal (diabetic amyotrophy)

Symptoms:

1- severe and progressive weakness and wasting of the proximal muscles of the lower (and occasionally the upper) limbs
2- severe pain, mainly felt on the anterior aspect of the leg,
3- hyperaesthesia and paraesthesiae
4- marked loss of weight ('neuropathic cachexia')
5- unable to get out of bed.

Signs:

1- Tendon reflexes may be absent
2- extensor plantar responses
3- cerebrospinal fluid protein is often raised.
4-

iii- Mononeuropathy (including mononeuritis multiplex)

Symptoms:

1-Involvement of single peripheral or cranial nerve.

2- severe

3-rapid onset

4- but they eventually recover.

5-most common **3rd and 6th** cranial nerves (resulting in diplopia), and the **femoral and** sciatic nerves.

5- truncal radiculopathies

6- carpal tunnel syndrome,(due to median nerve compression)

7- Foot drop (due to lateral popliteal nerve compression)

2-Visceral (autonomic)

1-Cardiovascular

Postural hypotension

Resting tachycardia (palpitation)

Fixed heart rate

How to test cardiovascular autonomic function

	Normal	**Borderline**	**Abnormal**
➢ **Simple reflex tests**			
Heart rate responses			
1- to Valsalva man[oelig]uvre (15 secs): ratio of longest to shortest R-R interval	≥1.21		≤1.20
2-to deep breathing (6 breaths over 1 min): maximum-minimum heart rate	≥15	11-14	≤10
3-to standing after lying: ratio of R-R interval of 30th to 15th beats	≥1.04	1.01-1.03	≤1.00
Blood pressure response			
• to standing: systolic BP fall (mmHg)	≤10	11-29	≥30

➢ **Specialised tests:**

- Heart rate and blood pressure responses to sustained handgrip
- Heart rate variability using power spectral analysis of ECG monitoring
- Heart rate and blood pressure variability using time-domain analysis of ambulatory monitoring
- MIBG (met-iodobenzylguanidine) scan of the heart

2-Gastrointestinal:

Symptoms:

i- Oesophageal atony:

Dysphagia,

ii- Gastroparesis:

Abdominal fullness,

nausea and vomiting,

unstable glycaemia, due to delayed gastric emptying

- iii- Nocturnal diarrhoea ± faecal incontinence
- iv- colonic atony :

  Constipation

3-Genitourinary

- I. Difficulty in micturition,
- II. urinary incontinence,
- III. recurrent infection, due to atonic bladder
- IV. Erectile dysfunction
- V. retrograde ejaculation

4-Sudomotor

- I. Gustatory sweating
- II. Nocturnal sweats without hypoglycaemia
- III. Anhidrosis; fissures in the feet

5-Vasomotor

- I. Feet feel cold, due to loss of skin vasomotor responses
- II. Dependent oedema, due to loss of vasomotor tone and increased vascular permeability
- III. Bullous formation

6-Pupillary :

- I. Decreased pupil size
- II. Resistance to mydriatics
- III. Delayed or absent reflexes to light

Hyperthyroidism

Presenting Complaints:

HOPI

Biodata:

Presenting Complaint: Ask its detail of it

Causes of Goiter, Hyperthyrodism, Thyroiditis, Secondary Thyrotoxicosis, Drugs, Toxic Nodule

Common Associated Symptoms	Sweating, Heat intolerance, diarrhea, palpitations,
Other Associated	Insomnia Neck Swelling which moves with deglutition, painless, nervousness, weight loss with good appetite, tremors Easy fatigability, muscle weakness, periodic paralysis, Oligomenorrhea, Amenhorrea, infertility, Proximal Myopathy Skin changes Dermopathy Bone pians, lymoh nodes ,hoarsness(CA Thyroid) Initially hyperthyroid , now hypo (15% of Grave's end in hypo) Polyuria, pruritis, fine hair , hair loss
Ophthalmopathy	Chemosis, proptosis, , decreased visual acuity , grittiness in eyes, Smoking worsens it, diplopia on looking upwards and laterally
Presentation of Thyroid Storm	ASOC, Hyperthermia,
Precipitating Factors of Thyrotoxic Crisis	1. Emotional stress 2.
Etiology of Hyperhyroidism	1. Graves disease 2. Toxic MNG 3. Toxic Adenoma 4. Thyroid CA/Mets 5. Ingestion of excessive iodide in MNG (Jod Basedow Phenomenon) 6. Drugs (Amiodarone, Thyroxine) 7. TSH Secreting Pitutary Tumor (headache, visual disturbance) 8. Struma ovarii
Complications	1. Compression (Stridor, Dyspnoea, Dysphagia) 2. Atrial Fibrillation 3. Thyroid Storm (Fever, unconsciousness) 4. Backache (Osteoporosis) 5. Heart Failure 6. Proximal
Associated Diseases	1.
ADL	
Personal Antecedenats	TFTS, Thyroid Scan, USG,CXR,Echo, ECG
Treatment Hx & Allergy, Complications of Rx	Agranulosis (Fever, sore throat, Hypothyrodism) Name of drugs, , Iodine 131 Surgery … if yes , tetany ?
Past History	Admissions, ER Visits,

	Radiotherapy, DM,HTN, IHD, CCF (If known case , start thyroxin low dose) ,COPD
Family Hx	Thyroid problem , Goiter,
Drug ,Treatment,Allergy	
Personal	EAST ………. Smoker (minor risk factor for Grave’s disease, major for
Socioeconomic	Occupation F Any pets,birds,pigeons (psitacossis) H…. overcrowding (TB) R

PHYSICAL EXAMINATION Scheme

GPE	
Look	Anxious, restless
Vitals	
Pulse	Bounding pulse , atrial fibrillation
Brachial BP	HTN , wide pulse pressure, collapsing
R.R.	
Axillary Temp	Febrile
Hands	
Hands	Warm , moist, palmar erythema, Onycholysis, Clubbing, thyroid acropachy
Arms	urticaria
Axilla	
Face, Eyes, Mouth Neck	Fine hair , diffuse alopecia Eyes : exposure keratitis, can close eyes?, chemosis , scleral injection proptosis, lid lag (Von Graeffe), lid retraction(Darlymple), extraoculr msucles movement, 2nd Nv compression leadng to visual field defects, papiloedema , RAPD, Color Vision Thyroid : details, bruit, scar
Sternum	Bony tenderness (osteopenia) , Gynecomastia
Legs	Grave’s dermopathy : tender, skin lesion, non pitting
Lymph Nodes	cervical
Evidence of CTD, Vasculitis	
Examination from back of chest while patient sitting	
Lie the patient flat	
Chest	
GIT	
CNS	Muscle wasting Brisk reflexes Proximal myopathy Flaccid weakness in periodic paralysis
Liet at 45 degree	
CVS	JVP Marantic endocarditis, IE , S3,S4
Sit up	
Cranial Nerves	Tracheal tug, FET 2nd,3rd,4th,6th,7th, Nystagmus

	Fundoscopy
Stand up	
Gait	Gait+Romberg+Gower sign GALS Postural Drop
Thank You	

INVESTIGATIONS

I would like to request a set of investigations for

1. Diagnosis
2. Management : physiologic & anatomic staging
3. Prognosis

Specific	
FT4,FT3,TSH	
TSI	
Anti TPO	Marker of autoimmunity
Radionuclide I131 Scan	Graves : high uptake Thyroiditis : No uptake

Hypothyroidism

Presenting Complaints:

Goiter, Lethargy, Weight Gain, generalized body swelling

HOPI

Biodata:

More in female ,
Resident of Areas of endemic goiter (mountains) ,
occupational hazard of radiation exposure

Presenting Complaint: Ask its detail of it

ODPARA

Common Associated Symptoms	Cold intolerance, constipation, Increased sleep , weight gain with loss of appetite, easy fatigability, lethargy Dry Hair, fall easily , Deafness, loss of eyebrows, Periorbital puffiness, husky voice, Neck Swelling which moves with deglutition SOB (anemia, pleural effusion,pericardial effusion), generalized body swelling , Abdominal distension ataxia (cerebellar degeneration),, H/O pins & needles in hands, pain (carpel tunnel syndrome) , seizures, AOC Dry skin , Cold (hypothermia) Arthralgia, myalgias, proximal myopathy, Loss of libido Menorrhagia , amenorrhea, loss of libido, infertility, galactorrhea Memory loss, Depression, apathy (lack of interest) Derranged Lipid Profile
Thyroid Associated Ophthalmopathy (in 5%)	
Myxedema coma	ASOC, Hypothermia, Bradykinesia
Precipitating Factors of Myxedema Coma	1. Impaired respiration (sedatives, anti depressants) 2. Pneumonia 3. CCF 4. MI 5. GI Bleed 6. CVA 7. Sepsis
Etiology of Hypothyroidism	1. Autoimmune hypothyroidism; hashimotos 2. Iatrogenic : neck surgery, radio iodine, radiation for any malignancy 3. Antithyroid Drugs , Lithium , Amiodarone 4. Congenital , family hx 5. Infiltrative Diseases: hemochromatosis, sarcoidosis, scleroderma 6. Hypopitutarism : headache, visual disturbance, postural dizziness, 7. Hypothalamic tumor
Complications	1. Myocardial Infarction 2. Heart Failure

	3. Effusion 4. Coma 5. Hypothermia
Associated Diseases	1. Vitiligo 2. Pernicious anemia 3. Addison’s disease 4. Type 1 Diabetes Mellitus 5. Alopecia Areata Other associated: 6. SLE 7. MG 8. Sjogren
ADL	
Personal Antecedenats	TFTS, Thyroid Scan, USG,CXR,Echo,Lipid Profile, pericardiocentesis, pleural tap
Treatment Hx & Allergy	Thyroxin (dose) , overdosage (palpitations, angina)
Past History	Admissions, ER Visits, Radiotherapy, DM,HTN, IHD (If known case , start thyroxin low dose) CCF,COPD
Family Hx	Thyroid problem , Goiter,
Drug ,Treatment,Allergy	Complications of over treatment : Atrial fibrillation , osteoporosis Does this patient need EXTRA thyroxine….. ask for celiac, Iron preparations, PPI,Rifampicin. Amiodarone, Phenytoin
Personal	EAST ……….
Socioeconomic	Occupation F Any pets,birds,pigeons (psitacossis) H…. overcrowding (TB) R

PHYSICAL EXAMINATION Scheme

GPE	
Look	Puffy expressionless face folley, NG, IV line slow movements, slow speech obese/overweight/increased BMI
Vitals	
Pulse	bradycardia
Brachial BP	Diastolic HTN
R.R.	
Axillary Temp	
Hands	
Hands	Husky speech Pallor, coarse dry skin , decreased sweating, Skin has yellow tinge, no jaundice Retarded nail growth (Longitudinal ridging, Onycholysis) Cool extremities Examine For Carpel Tunnel Syndrome pseduomyotonia vitiligo (associated)
Arms	
Axilla	
Face, Eyes, Mouth Neck	Dry hair , alopecia areata Facial puffiness , edematous eyelids, thinning of outer 1/3 of eyebrows Tongue : Detailed Thyroid examination : goiter (irregualar , firm), MNG, Nodule ,
Legs	Non pitting pretibial edema
Perioral	
Neck	
Lymph Nodes	
Evidence of CTD, Vasculitis	
Examination from back of chest while patient sitting	
	Pleural effusion
Lie the patient flat	
Chest	
GIT	ascites
CNS	Proximal myopathy Cerebellar Signs (Cerebellar degeneration) Conductive deafness Slow relaxation of tendon reflexes,

	Can have signs of B12 Deficiency (associated pernicious anemia) Impaired Memory (MMSE)
Liet at 45 degree	
CVS	JVP Muffled heart sounds in pericardial effusion
Sit up	
Cranial Nerves	
Stand up	
Gait	
Thank You	

INVESTIGATIONS

I would like to request a set of investigations for

1. Diagnosis
2. Management : physiologic & anatomic staging
3. Prognosis

Specific	
FT3,FT4,TSH	
Markers of autoimmunity	Anti TPO (Thyroid Peroixdase) Antibodies Anti Thyroglobulin Antibodies TSH-R Blocking Antibodies
FNA Biopsy	To confirm autoimmune goiter
CPK	
Lipid Profile	
CBC	Macrocytic Anemia
LFTs	
Urine C/E	
RFTs	
ECG	Low voltage , rule out occult IHD
Pulse Oximetry	

FUO

Definition:

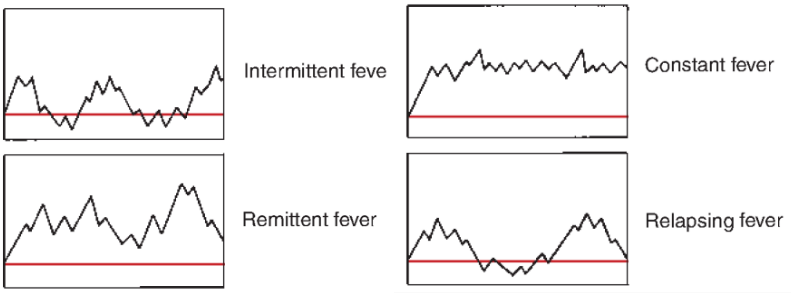
- Fever higher than 101 °F (38.3ºC) on several occasions
- Duration of fever for at least three weeks
- Uncertain diagnosis after one week of study in the hospital

Etiologies

- Infections
- Malignancies
- Connective tissue disease
- Vasculitis
- Multisystem disorders

Rheumatic fever	**Renal cell carcinoma**	**Polyarteritis Nodosa**
Sinusitis	Sarcoma	Reactive arthritis (formerly Reiter's syndrome)
Toxoplasmosis		Sarcoidosis
Typhoid fever*		Still's disease
Tuberculosis		Systemic lupus erythematosis
Whipple's disease		Takayasu'

FEVER – History Taking

S	
Duration	
Onset	Sudden, gradual
Intensity	>101 °F = High grade, documented? at which site. Axilla?
Character/ Pattern	
Intermittent	high spike and rapid defervescence … tuberculosis, lymphoma, most pyogenic infections
Remittent	fluctuating peaks and a baseline that does not return to normal; fluctuations > 1°F they can appear to be intermittent if antipyretic agents are administered. e.g. endocarditis, sarcoid, lymphoma, and atrial myxoma…. Never say it ☺
Continuous	fevers persist with little or no fluctuation fluctuations <1 °F but can appear to be intermittent if antipyretic agents are administered e.g. typhoid, drug fever
Relapsing	fevers with periods during which patients are afebrile for one or more days between febrile episodes may be seen with malaria, lymphoma
Pel-Ebstein	Relapsing fever with bouts of fever lasting 3-10 days ...e.g. lymphoma
	
Any predictable time How it affects patient life? inability to sleep, excessive vomiting, bed ridden, unable to take orally)	
Associated symptoms	

GPE Examination Check List

Pre-Exam

Stand on right side of patient

Greetings: Asalam-o-Alaikum

Introduction

Consent

Ask examiner you will like to expose patient fully , have drape , screen for privacy

Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.
Meanwhile assess Hoarsness

Look and Ask if patient is having an IV line (Branula) , if yes , at which site

Exposure : remove shirt (If time allows)

Position: lying straight on bed with small pillow under head , arms by the side OR sitting

Look for NG , Foley , Drain and its contents

General Look

Go to foot end

Age , gender , posture , comfort , demeanor , built/physique

Look for catheters , sputum jar , urine colour

Ask for tenderness in any part of body

Vitals

Insert Thermometer in axilla and check temperature at end

Pulse : rate , rhythm , volume , character , check for collapsing pulse

Blood pressure

Respiratory rate

Hands

Mees Line

Nails : Clubbing (in profile view) , Leuconychia , Koilonychia , splinter hemorrhages , Cyanosis , Quincke’s sign , Discolouration (Mee’s line , Beau’s line) , Nail pitting ,

Fingers : PIP/DIP nodules , Joint swelling , subcutaneous nodules ,

Beau's Line

Hands : feel palm for temperature and sweating , deviation , palmar erythema , wasting of palm or guttering at dorsum , Pallor , cyanosis **Skin:** is skin tight?

Arm : look for bruises , Tatoos Epitrochlear Lymph nodes

Axilla : axillary lymph nodes , Acanthosis nigricans

Face

Scalp: deformity , hair

Face: complexion , 7th nerve , puffiness , shape , mask like , malar flush , butterfly rash , coarse skin

Eyes: Ptosis **,** miosis , pallor , jaundice , Arcus , calcification , dryness , Thyroid signs (staring look , exophthalmos , lid lag, lid retraction , loss of lateral 1/3 of eyebrows in hypothyroidism)

fig. 152-9 Fig 152-10 Fig 152-11

Nose: Lupus pernio

Lips: cyanosis , angular stomatitis ,

Oral Cavity: oral ulcers , on palate , blackish discoloration in mucormycosis , uvula , Ah test, Orodental Hygiene

Tongue: glossitis , cyanosis , pallor on ventral surface , Color (red beefy , strawberry) , aphthous ulcers , Deviation of tongue , macroglossia

Jaw : ask him to clench teeth (check proganthism)

Neck

Neck : ask him to take sip of water (thyroid) , JVP , neck veins
Cervical lymph nodes : check from back …….. Look for spider angiomas , any finding , sacral edema
Exophthalmos , protrusion of eyes, spine tenderness
Chest : Visible deformity , Gynecomastia , listen to heart and back of chest if clubbing +ve. Auscultate heart if severe anemia (for murmur ,) , sternal tenderness
Abdomen : Visible deformity (check liver & spleen if lymphadenopathy or pallor) Abdominal lymph nodes
Inguinal region : hernia orifices , inguinal lymph nodes
Legs: skin lesions , pedal edema , visible deformity
Ophthalmoscopy :
Tell examiner you would like to examine genitalia
End of exam
Say thanks
Drape the patient

Minimum Exam in GPE

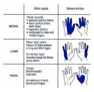
04 Vitals (Pulse,BP,RR,Temp)
06 Non Vitals :

i. Hands & Arms
ii. Face (Scalp,face,eyes,mouth)
iii. Thyroid
iv. JVP
v. Lymph Nodes
vi. Legs

Examination Sequence
sitting from front
sitting from back
lying at 45 degree
flat

Acromegaly Scheme

Command: GPE

Vitals		
	Pulse	
	B.P.	HTN in 15 % cases
	R.R.	
	Temp	
Hands		
Hand Shake	1. Moist, doughy hands with 2. Excessive sweating & 3. Enveloping handshake 4. Thick skin	
Morphology	1. Large hands 2. broad palms 3. spatulate fingers 4. volume of hands is increased	
Carpal Tunnel Syndrome	Wasting of the thenar eminence	
	Look carefully for scar of previous surgery (hidden by the crease of the wrist).	
	Check motor component of thumb: Weakness of flexion, abduction and opposition of thumb	Thumb (first carpometacarpal and metacarpophalangeal joints) Flexion Extension Opposition Adduction Abduction 
	Diminished sensation over lateral three and half fingers	
	tap over flexor retinaculum ; patient may experience tingling	**Tinel' Sign**
	Ask the patient to hyperextend the wrist maximally for 1 min; this may bring on symptoms i.e. dysaesthesia over the thumb and lateral two and half fingers):	**Phalen's test** / Reverse Prayer Sign
Arms & Axilla		
	skin tags	Molluscum Fibrosum
	Black velvety papillomas	Acanthosis Nigricans
Face		
Forehead	Prominent supraorbital ridges	
Nose	Large Nose	
Oral Cavity	Large lips	
	Protrusion of the lower jaw	prognathism

	Motor supply	Sensory territory
MEDIAN	Thenar muscles: • abductor pollicis brevis • flexor pollicis brevis (with ulnar) • opponens pollicis • lumbricals to index and middle fingers	
ULNAR	Flexor carpi ulnaris Flexors of distal phalanx of ring and little fingers All intrinsic hand muscles except the thenar group above	
RADIAL	Triceps Brachioradialis Supinator All extensors of wrist, thumb and fingers	

	ask the patient to clench his teeth and note	malocclusion and splaying of the teeth i.e. interdental separation
	Show your tongue : look for impressions of the teeth on the edges of the tongue	macroglossia
Eyes		
	Bitemporal Hemianopia	
	Fundoscopy , DM, HTN Retinopathy	Optic atrophy
Neck		
	Goitre	
Chest		
	Gynaecomastia	
	Galactorrhoea	
Abdomen		
	Hepatomegaly	
	Splenomegaly	
Musculoskeletal		
	Osteoarthrosis	
	Chondrocalcinosis	
	Kyphosis (forward bending) , Check proximal myopathy	
Precordium		
	Displaced apex beat , pitting edema for HF	cardiomegaly
Tell Examiner you would like to do		
	Examine urine for sugar	impaired glucose tolerance

Legs: pedal edema, thickened heel pad

Description

GPE of this cooperative gentleman revealed

- Pulse of 84.min, regular.
- His Brachial Blood Pressure is 140/80 mmHg
- Respiratory rate is 20/min
- Axillary Temperature is 99 °F

Handshake was Enveloping. Hands are large, Moist, doughy, with Excessive sweating. Palms are broad, with spatulate fingers. Volume of hands is increased with thick skin

Tinel’ Sign: tap over flexor retinaculum

Command: Examine the pulse and do the relevant examination

Pre-Exam
Stand on right side of patient
Greetings: Asalam-o-Alaikum
Introduction
Consent
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.
Position: at 45°
Ask if patient is having an IV line (Branula) , if yes , at which site
Exposure : ideally remove shirt, if does not allow, INFORM examiner and expose from clavicles to umbilicus
Look for NG , Foley , Drain and its contents
Insert Thermometer in axilla and check temperature at end
EXAMINATION
Radial Pulse: rate , rhythm , volume , character , vessel wall Check for radio-radial delay Check for radio-femoral delay
Check **Brachial** pulses B/L
Check **Carotid** pulses one by one : comment on slow-rising , bisferiens , parvus
Check B/L femoral pulses
Check B/L popliteal pulses
Check B/L posterior tibial artery
Check B/L dorsalis pedis artery
Apply BP cuff on arm , pulsus alternans : deflate cuff slowly , no of sounds double when cuff is deflated little below systolic BP pulsus paradoxus : deflate cuff 2mmhg , sounds heard only in exp first … on further deflation , sounds heard in insp too Difference between these two pressures is pulsus paradoxus
Examine the precordium and relevant specially opthalmoscopy

Gastrointestinal System Examination Check List

Command: **Examine the abdomen and do the relevant examination**

Action	
Pre-Exam	
Check Environment comfortability : Light , temperature	
Stand on right side of patient	
Greetings: Asalam-o-Alaikum	
Introduction	
Consent	
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.	
Position: Supine, arm by the side of patient Head resting only on 1 or 2 pillows	
Ask if patient is having an IV line (Branula) , if yes , at which site	
Exposure : From nipples to mid-thigh If could not , tell examiner you will to expose to this extent	
Look for NG , Foley , Drain and its contents	
Insert Thermometer in axilla and check temperature at end	
Inspection	
From: Above, Foot end and from right side of patient Ask him to take deep breath Elevate your head سر اوپر اٹھائیں	Divarication of Recti
Shape of abdomen; If distended, generalized or localized	
Abdomen moving with respiration	
Pattern of respiration	
Umbilicus	
Any visible skin deformity	
Visible veins; If yes , direction of flow	
Visible pulsations	
Scar Marks , Ascitic tap marks , adhesive sticking applied	
Pattern of pubic hair distribution	
Check Hernia orifices , Cough Impulse, Ask patient to cough and see bulging at site of Hernial orifices	
Palpate inguinal Lymph Nodes	
Palpation	
Ask for tenderness	
Warm hands if needed	
During palpation , look at face of patient [for tenderness]	

Superficial palpation … in S shape ; LIF →Lt.Lumbar →LHC →Epigastric → Umbilical →Hypogastric → RIF → Rt. Lumbar →RHC Assess for mass , Muscle tone : soft , guarding If mass palpable , ask patient to LIFT neck [tenses abd. Muscles] ..abd. wall mass still palpable , intraabdominal NOT	
Palpate for Liver , **If palpable , percuss** upper border in breath held in expiration use dipping method if massive ascites Span in Cm	Span, Edge,Surface, Consistency
Palpate Spleen, **If not ,** roll towards yourself and then palpate **Still Not palpable, Percuss** over lateral chest (Traube,s Semilunar Space) for dullness over spleen If felt , ask him to take deep breath	Moves with respiration
Bimanual palpation for Kidneys	
Para Aortic Lymph Nodes	
Palpate for urinary bladder	
If visible pulsation , check is it expansile	
Percussion	
Percuss upper border of urinary bladder	
Shifting dullness	
Fluid Thrill	
Auscultation	
Bowel Sounds at umbilicus	
Hepatic Rub	
Splenic Rub	
Renal Bruit on both sides	
Examination of Genitelia: Scrotal examination, testicular atrophy	
Tell examiner you will like to do Per Rectal Examination	
Relevant Exam	
Elevate head end to 45 ° and check for 1. JVP 2. Precordium (IE, CCF) 3. Sternal tenderness	
Ask him to sit and examine for:	
Dorsum of Hands: 1. Deformities of RA 2. Nails: I. Leukonychia II. Koilonychia III. Clubbing IV. Guttering	
3. Spread your hands ہاتھ پھیلا لیں /Flapping Tremors	Asterixis
4. Palms : ہاتھ سیدھے کر لیں i. Palmar Erythema ii. Anemia iii. Dupuytren contracture	

5. Pulse	
6. Bruises on arms, ,Tatoos	
7. Epitrochlear Lymph Nodes	
8. Axillary L.N,	
9. **spider angiomas above the level of nipple**	
10. Gynecomastia , Sternal Tenderness	
11. Loss of scalp hair	
12. Eyes: i. Pallor ii. jaundice ,	
13. Face: i. facial puffiness ii. parotid swelling	
14. Mouth: i. Tongue : glossititis ii. oral ulcer iii. angular stomatitis iv. Lichenoid Lesions v. Waldeyer's Ring	
JVP (if ascites is there)	
Legs: Pedal Edema, Pyoderma gangrenosum, Erythema Nodosum (Sarcoidosis)	
Go Behind the patient	
15. Cervical L.N. 16. Chest : Percuss and auscultate bases of lungs ; effusion , crepts (sarcoidosis)	
TELL EXAMINER YOU WILL LIKE TO DO	
Examination of genitelia : for testicular atrophy in CLD	
PR rectal examination	
Breast exam ~~if~~ suspecting metastatic Breast disease	
Slit Lamp exam (Wilson’s) and Detailed chest exam (Alpha 1 antitrypsin deficiency)	

CVS System Examination Check List

Command: **Examine the precordium and do the relevant examination**

Pre-Exam
Stand on right side of patient
Greetings: Asalam-o-Alaikum
Introduction
Consent
Ask examiner you will like to expose patient fully , have drape , screen for privacy
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.
Position: at 45°
Ask if patient is having an IV line (Branula) , if yes , at which site
Exposure : ideally remove shirt, if does not allow, INFORM examiner and expose from clavicles to umbilicus
Look for NG , Foley , Drain and its contents
Insert Thermometer in axilla and check temperature at end
Inspection
From: foot end and from right side of patient
Shape of chest
Visible apex beat
Visible pulsations in chest , neck (dancing carotids) , suprasternal , epigastrium and RHC
Scars e.g. mid-line sternotomy scar
Visible veins ; If yes , direction of flow [to be assessed on palpation] for SVC obstruction
Neck veins : engorged
Palpation
Warm hands if needed
Tenderness : First ask then check by palpating
Apex Beat: on lying supine →moderate left lateral→ on sitting & leaning forward→check on right side for dextrocardia → impalpable Comment on Character , area
Place hand for thrill on left side vertically
Place hand for palpable P2 on pulmonary area horizontally
Place hand for palpable thrill on A2 horizontally
Palpate right side neck for radiation of AS
Check for left parasternal heave
Check epigastric heave
Palpate for pulsatile liver + check JVP and do hepatojugular reflux

Auscultation
Keep THUMB on carotid
Listen at **mitral area** for S1 and Gallop rhythm Listen at **pulmonary area** for S2 and splitting

At **Mitral area**

Listen for MS , AS , Gallop Rhythm and any other murmur

Hold breath in end inspiration (insp) and expiration(exp) and check effect on murmur

Check for radiation in axilla

Change to bell , auscultate . then ask to be left lateral (for MS)

On return , switch back to diaphragm

At **Tricuspid Area:** Auscultate , then at end insp and exp

At **A2 Area:** Auscultate , then at end insp and exp

At **Pulmonary Area:** Auscultate , then at end insp and exp

At **A1 Area:** Auscultate , then at end insp and exp

Auscultate in neck for radiation and carotid bruit

Ask patient to sit and lean forward , Auscultate on A1 & A2 for AR

Relevant Examination

Auscultate base of lungs for crackles , ronchi (COPD →A.fib) , pleural effusion (CCF)

Check sacral edema

Nails : clubbing , cyanosis , splinter hemorrhages , Quincke's sign

Fingers : feel pulp for Osler nodes , gangrene , nicotine staining

Palm: janeway lesions , pallor ,

Pulse: rate , rhythm , volume , character , radio-radial and radio-femoral delay

Check for collapsing/water-hammer pulse (ask for pain in shoulder first)

Check Blood Pressure

Look for needle marks (IV drug abuse) in both arms

Look for tendon xanthomas

Face: facial puffiness , malar flush , head-nodding (Demusset's sign)

Eyes: Pallor , jaundice (due to congested liver) , Xanthelasmas

Mouth : Central cyanosis , pulsating uvula (Mueller's sign in AR)

Neck: You have already checked JVP , just show to examiner as you are looking for JVP , Thyroid

Abdomen : ask tenderness , Palpate **liver** , if palpable , check upper border and span , Palpate **spleen**

Shifting dullness , fluid thrill for ascites (CCF)

Palpate kidney if HTN+ve for Polycystic kidney disease , Ausculate renal artery bruit

Auscultate Femoral Arteries : for Tranbe's pistol shots , Durozier's sign

Check Pedal oedema , Erythema marginatum

Feet : same as hand , gangrene

Ophthalmoscopy , if no time , inform examiner

Comment on Roth spots , Diabetic and hypertensive changes

End of Exam

Cover/drape the patient

Say Thanks

Description of precordial Examination & Relevant

Opening Sentence	Precordial examination of this gentleman who was conscious, cooperative and comfortable during examination (/at rest) revealed
Inspection	1. visible pulsations in the precordium , neck & epigastric/RHC area. Without any 2. chest deformity (shape) or 3. scar marks (sternotomy, thoracotomy) 4. Neck veins are distended/engorged (JVP). 5. JVP is raised 5cm above the sternal angle with CV wave(TR) with +ve heapto jugular reflex
Palpation	1. Apex beat is well localized in the 5th intercostal space , just medial to MCL, its tapping in character. 2. There is left parasternal heave and 3. Pulmonic component of 2nd heart sound is palpable. 4. No thrill is palpable.
Auscultation	1. Both first and second heart sounds are audible 2. First Heart sound is loud at apical area 3. Pulmonic component of 2nd heart sound is loud with normal splitting. No 3rd or 4th Heart sound is audible. 4. There are no added heart sounds (OS, EC, Metallic sounds/click, Pericardial rub, pleuro-pericardial rub). 5. A Grade 3 low pitched, rumbling , mid-diastolic murmur is present at apical area , best heard with bell with breath held in expiration in left lateral positon. 6. A Grade 3 Pansystolic murmur is present at left lower sternal edge, best heard with diaphragm and breath held in inspiration. 7. Both the bases of lungs are clear
Pulse	Radial Pulse is 72/min, regular, without any special character. There is no radio-radial or radio-femoral delay.
B.P.	Brachial B.P. in right arm is 120/80 mmHg
Temp	Afebrile (Normal temp is 97.5 – 99.5 F: Hutchison)
JVP	Already told

Relevant Examination

On Relevant Examination

+ve findings	He has got pallor. Etc …. Then tell negative ones
Hands	There are no peripheral stigmata of infective endocarditis (clubbing, splinter hemorrhages, nail fold infarcts, osler nodes, janeway lesions) There is a tatoo mark/needle marks on right forearm. There is no pallor,jaundice, cyanosis, malar flush. Light reflex intact (Argyl Robertoson pupil in AR) Orodental hygiene is adequate. There is no heapto or splenomegaly. No evidence of free fluid in the abdominal cavity. No tenderness in flanks (renal involvement)

	No scar at antecubital fossa or femor (of cardiac catheterization) No sacral or pedal edema. No roth spots on fundoscopy Patient is able to move all four limbs with B/L down going plantars

Viva :

Based upon the findings , my diagnosis is

1. Mitral Stenosis with pliable and pulmonary hypertension,
2. Most likely due to Rheumatic Heart Disease,
3. Patient is not in Heart Failure at the moment
4. Without any evidence of thromboembolic phenomenon
5. And possible in the sinus rhythm

Valvular Heart Disease Severity Criteria & AHA 2014 Class 1 Indications of Intervention

Murmur	Echo Criteria of Severity	Class 1 Indications of intervention
Aortic Stenosis Vmax= max aortic velocity	i. Aortic valve area ≤1.0 cm^2 + ii. Resting Aortic Vmax < 4m/s OR iii. Mean Pressure Gradient <40 mmHg	1. **ALL SYMPTOMATIC patients** On history or on exercise testing (Stage D1) 2. **ASYMPTOMATIC** patients with severe AS + **LV Dysfunction** LVEF <50%(C2) 3. **severe AS** (stage C or D) when **undergoing other cardiac surgery** **Indications for TAVR in AS** 1. Indication for AVR BUT **Prohibitive** surgical risk (predicted risk with surgery or major comorbidity>50% at 1 year or or >3 organ systems compromised) 2. Indication for AVR BUT **High** surgical risk(STS predicted risk of mortality>8% or ≥2 organ systems)
Aortic Regurgitation ERO= Effective regurgitant orifice Vena Contracta	i. Regurgitant volume > 60ml/beat, ii. Regurgitant fraction >50% iii. ERO ≥ 0.3 cm^2 iv. Vena Contracta > 0.6 cm v. Doppler jet width >65% of LVOT	1. All **symptomatic** patients (D) 2. **Asymptomatic Severe** AR with **LVEF <50%** (C2) 3. **Severe AR** (C or D) while undergoing **cardiac surgery for other indication** **Aortic Root Replacement or Repair:** Aortic root diameter of sinuses or ascending aorta >5.5 cm (in patients with bicuspid aortic valve)
Mitral Stenosis Diastolic pressure half time Wilkin Echo Score	i. MVA < 1.5 cm^2 ii. Diastolic pressure half time > 150ms*	**1. PMBC** for **Symptomatic, severe** MS **AND** favorable valve morphology (Echo Score < 8), No clot in LA, NO moderate to severe MR **2. MV Surgery** (Repair = Commissurotomy = MVR) in **severe symptomatic MS** **WITH** No high risk for surgery, Not candidate for PMBC OR Failed PMBC **3.** MV Surgery FOR severe MS (Stage C or D) when other cardiac surgery is done
Mitral Regurgitation	i. Regurgitant volume > 60ml/beat, ii. Regurgitant fraction >50% iii. ERO ≥ 0.4 cm^2 iv. Vena Contracta >0.7 cm v. Central jet MR > 40% LA	1. MV Surgery* ----for---- Symptomatic severe MR AND **EF >30% (**Stage D) 2. MV Surgery* ----for---- **Asymptomatic** sever MR AND LV Dysfunction i.e. EF 30-60% **& /or** LVESD≥40mm (Stage C2) 3. MV Surgery FOR severe MR when other cardiac surgery is done *Repair preferred over MVR whenever possible

Respiratory System Examination Check List (Back)

Pre-Exam	
Stand on right side of patient	
Greetings: Asalam-o-Alaikum	
Introduction	
Consent	
Ask examiner you will like to expose patient fully , have drape , screen for privacy	
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc. Meanwhile assess Hoarsness	
Look and Ask if patient is having an IV line (Branula) , if yes , at which site	
Exposure : remove shirt	
Position: sitting , back towards you , hands crossed on both shoulders	
Look for NG , Foley , Drain and its contents Sputum	
Insert Thermometer in axilla and check temperature at end	
Inspection	
Give a general look	
From: back amd then from looking above from scapula	
Posture of patient , comfort ability	
Shape of chest , Symmetry ,	
Ask patient to take a deep breath and B/L moving with respiration	
Visible veins , scars , pulsations radiation mark	
Using accessory muscles : intercostal & subcostal recessions ,	
Supraclavicular fossae: fullness/ indenting	
Look at hands (while crossed on shoulder) for clubbing , cyanosis	
Palpation	
Ask and then Check tenderness , also bone tenderness , also on spine. Look at face of	
Check apical chest movements	
Check chest movements at level of nipple and below	
Chest expansion to be checked in sitting position later at the level of 5th ICS	
Check vocal fremitus apex , intrscapular , 2 points below scapula then lateral	
Check pedal oedema	
Percussion	
Tell patient what and how you will do	
Apex: 3 points and compare each separately , then interscapular , then below scapula and	//
Auscultation	
Always compare , first normal than with deep respiration	
Supraclavicular → then inter scapular and then infrascapular.. don't go more than 2 ICS	//
Comment on 1. intensity of breath sounds 2. Duration of inspiration 3. Character i.e. vesicular & bronchial 4. Any added sounds : crepitations , rhonchi , rub	

Vocal resonance	
Any other sign : whispering pectorlique , aegophony , coin sign	
Check cervical lymph nodes	
Buffalo hump (due to steroid use)	
Make the patient lie	
Check position of trachea , tracheal tug , FET , apex beat	
Go to foot end , look to confirm findings of back e.g. bulging chest in one side	
Look for chest tube , tap marks , movement of alae nasi	
Perform examination if needed	
Relevant Examination	
Nails : clubbing , cyanosis ,	
Hands: warm , astrerixis , nicotine staining , wasting of hands	
Wrist : check for hypertrophic pulmonary osteoarthropathy	
Pulse : rate & rhythm (a.fib)	
B.P. , Check Temperature	
Brusining of skin , Proximal muscle wasting (by use of steroids in COPD , Asthma)	
Axilla : lymph nodes , Check for acanthosis nigricans	
Eyes: pallor , jaundice (Corpulmonale → congested liver) , Horner syndrome (Ptosis ,	
Face: Butter fly rash in SLE , facial puffiness (pulmonary renal syndromes)	
Mouth : cyanosis , dental hygiene (caries)	
Neck : Thyroid , JVP , non-pulsatile neck veins in SVC obstruction , cervical lymph nodes	
Supraclavicular lymph nodes	
Auscultate for P2 , and heart sounds	
Abdomen : check ascites by shifting dullness (Meig syndrome) , check liver , spleen	
Legs: pedal edema, erythema nodosum (TB)	
Fundoscopy: choroid tubercules , papiloedema in CO2 retention , Brain abscess sec to lung abscess	
End of Exam	
Cover/drape the patient	
Say Thanks	

Respiratory System Examination (Front)

Pre-Exam
Stand on right side of patient
Greetings: Asalam-o-Alaikum
Introduction
Consent
Ask examiner you will like to expose patient fully , have drape , screen for privacy
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc. Meanwhile assess Hoarsness
Look and Ask if patient is having an IV line (Branula) , if yes , at which site
Exposure : remove shirt
Position: lying straight on bed with small pillow under head , arms by the side
Look for NG , Foley , Drain and its contents Sputum jar
Insert Thermometer in axilla and check temperature at end
Inspection
From: foot end and from right side of patient
Posture of patient , comfort ability , look at hands to get clue for clubbing (and then consider its DD)
Shape of chest , Symmetry ,
Ask patient to take a deep breath and B/L moving with respiration
Visible veins , scars , pulsations
Using accessory muscles : movement of alae nasi , intercostal & subcostal recessions ,
Supraclavicular fossae: fullness/ indenting
Pursued lips
Ask him to cough . look for epigastric hernia ?
Count respiratory rate , pattern of breathing
Palpation
Check tenderness , also bone tenderness , Look at face of patient .
Check position of Trachea , Check Apex Beat
Check apical chest movements
Check chest movements at level of nipple and below
Chest expansion to be checked in sitting position later at the level of 5th ICS
Check for crepitations (sub-cutaneous emphysema)
Check vocal fremitus
Percussion
Tell patient what and how you will do
First check upper border of liver
supraclavicular → direct on clavical → then 2-6 ICS by standard method Make inverted V on chest Lateral Percussion : make the patient sit , hands on head and percuss
Auscultation

Always compare , first normal than with deep respiration
Supraclavicular → then 2-6 ICS on front → 4^{-7} ICS laterally
Comment on 1. intensity of breath sounds 2. Duration of inspiration 3. Character i.e. vesicular & bronchial 4. Any added sounds : crepitations , rhonchi , rub
Vocal resonance
Any other sign : whispering pectorlique , aegophony , coin sign
Check apex beat
Make the patient sit
Check tracheal tug , FET
Measure chest expansion by measuring tape
Examine back of chest : at least auscultation
Relevant Examination
Nails : clubbing , cyanosis ,
Hands: warm , astrerixis , nicotine staining , wasting of hands
Wrist : check for hypertrophic pulmonary osteoarthropathy
Pulse : rate & rhythm (a.fib)
B.P. , Check Temperature
Brusining of skin , Proximal muscle wasting (by use of steroids in COPD , Asthma)
Axilla : lymph nodes, Check for acanthosis nigricans
Eyes: pallor , jaundice (Corpulmonale → congested liver) , Horner syndrome (Ptosis , Miosis)
Face: Butter fly rash in SLE , facial puffiness (pulmonary renal syndromes)
Mouth : cyanosis , dental hygiene (caries)
Neck : Thyroid , JVP , non-pulsatile neck veins in SVC obstruction , cervical lymph nodes
Supraclavicular lymph nodes
Auscultate for P2 , and heart sounds
Abdomen : check ascites by shifting dullness (Meig syndrome) , check liver (enlarged tender in abscess)
Legs: pedal edema, erythema nodosum (TB)
Fundoscopy: choroid tubercules , papiloedema in CO2 retention , Brain abscess sec to lung abscess
End of Exam
Cover/drape the patient
Say Thanks

First Cranial nerve (Olfactory)

Pre-Exam
Stand on right side of patient
Greetings: Asalam-o-Alaikum
Which language can you understand better , urdu , Punjabi , Saraiki ?
Introduction
Consent
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.

First Cranial nerve

Ask him

1. Can he smell normally before?
2. Are you allergic to any thing?

NB:

1. Check each nostril separately

Perform:

1. Check with any bedside object e.g. fruits etc.
2. Check selected substances in similar bottles

2nd Cranial Nerve(Optic)

Pre-Exam
Stand on right side of patient
Greetings: Asalam-o-Alaikum
Which language can you understand better , urdu , Punjabi , Saraiki ?
Introduction
Consent
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.
Examination

Perform:

1. **Visual Acuity :** **NB:** Check each eye one by one , DON'T CHECK BINOCULAR ACUITY
    - a. Check for any distant object **… Can skip it, far vision is due to refractory problems, not neurological problems**
    - b. Check by handheld near vision chart
2. **Visual Field:**
    - **A. Peripheral Vision**
        - a. **Binocular :**
            - i. Distance should be 1 arm length between you & patient
            - ii. You should be at level of patient
            - iii. Ask him to look into your eyes
            - iv. Ask him to tell you finger of which side is moving when you come inside from both sides . move fingers separately & then both at a time
            - v. Test each quadrant separately
        - b. **Uniocular :**
            - i. Check each eye separately
            - ii. **For patient left eye :** ask him to close right eye & close your left eye
              Ask him to look into your eye
              Bring finger from right side upper & lower quadrant
              Then bring finger from left side
            - iii. **For patient right eye :** ask him to close left eye & close your right eye
              Ask him to look into your eye
              Bring finger from left side upper & lower quadrant
              Then bring finger from right side upper & lower quadrant
    - **B. Central Vision:**
3. **Colour Vision :** Check by isharah chart
4. **Light Reflex:**
    - i. Tell examiner you like to have day/adequate light for this
    - **ii. Ask patient to look straight on a distant object**
    - iii. Shine light into one eye and look on reaction of pupil in same eye **(Direct)**
    - iv. Shine light into one eye and look on reaction of pupil in OPPOSITE eye **(Consensual)**
    - v. **Check for RAPD if light reflex is not normal:**

5. **Accommodation Reflex:**
   Ask him to look at a distant object and then near (his nose, your finger)
   Look for convergence , miosis
6. **Ophthalmoscopy:**
   Pre-requisites:
    1. Consent
    2. Tell examiner you would like to have **Dark room**
    3. Tell examiner you would like to have eyes **Dilated**
    4. **Tell patient** you will come with this instrument , you may come very near , you will not harm him… **Do Not look into light**
    5. Patient right eye , your right eye and use right hand & vice versa

6. **Disc:** comment on **MCC** (Margins , Cup , Colours) **, Vessels , Colour of fundus & any findings**
7. Then ask him to look into the light … to see fovea
8. At the end , say thanks

3rd , 4th , 6th Cranial Nerves

Pre-Exam

Stand on right side of patient

Greetings: Asalam-o-Alaikum

Which language can you understand better , urdu , Punjabi , Saraiki ?

Introduction

Consent

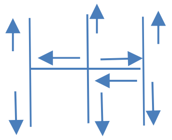
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.

Instruct Patient :

1. Do not move your head. Just move eyes
2. Follow my finger wherever it goes
3. If you see DOUBLE image at any time , inform me

3rd Cranial nerve

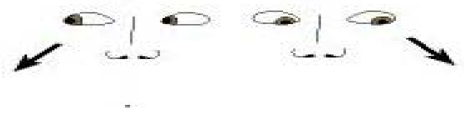
1. Look at posture of Head : tilt of head indicates compensatory posture to correct diplopia
2. Look for ptosis
3. Look for position of eyeballs : both should be in center in normal forward gaze
4. Check Pupil size
5. Check Movements in H shape



2.

6. Check Light Reflex
7. Check accommodation reflex

4th Cranial Nerve (SO4)



Checking Left 4th Nv

Checking Right 4th Nv

6th nerve (LR 6)

Check both lateral rectus

If there is diplopia in one eye , check it in other eye.

Unilateral diplopia : Neurological

Bilateral diplopia: eye problem

5th Cranial Nerve

Pre-Exam
Stand on right side of patient
Greetings: Asalam-o-Alaikum
Introduction
Consent
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.
Examination of 5th nerve
Motor Part: 1. Ask him to clench his teeth. Check/feel bulk of masseters 2. Ask him to clench his teeth. Check/feel bulk of temporalis 3. Ask him to move jaw from side to side and then against resistance 4. Jaw Jerk do only if other positive findings there **Sensory Part:** 1. Check Touch , Pain , Temperature in each division of 5th Nerve separately and compare 2. Corneal reflex 3. Conjuctival reflex

7th Cranial Nerve

Pre-Exam
Stand on right side of patient
Greetings: Asalam-o-Alaikum
Introduction
Consent
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.
Examination
1. Check hyperacusis 2. Frowning : ask him to look at ceiling 3. Ask him to close eyes forcefully and try to open 1 4. Look for dribbling of saliva / patient taking tissue to clean saliva 2 5. See nasolabial folds 6. Ask him to show teeth and comment on deviation of angle of mouth 7. Ask him to smile 8. Ask him fill cheeks with air and then gently tap 9. Check corneal & conjuctival reflex 10. Tell examiner you will like to check whistling , taste over anterior 2/3 of tongue

9th, 10th, 11th, 12th Cranial Nerve

Pre-Exam

Stand on right side of patient

Greetings: Asalam-o-Alaikum

Introduction

Consent

Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.

Examination of 9th nerve

1. Is NG in place i.e. gag not intact
2. Check gag reflex. Touch each side of pharynx separately
3. Palatal Reflex: touch soft palate with blunt probe, ask patient about felt or not (sensory) , check movements of soft palate
4. Check taste over posterior 1/3 of tongue
5. Carotid massage and observe associated slowing of heart rate

Examination of 10th nerve

1. Nasal twang in speech : Ask him to say egg .. he will say eng
2. See uvula . is it central?
3. Aah test: ask him to say aah. See if uvula elevates and posterior pharyngeal wall constricts
4. Ask him to cough
5. Check Gag reflex. Touch each side of pharynx separately
6. Check palatal reflex
7. Indirect laryngoscopy
8. Carotid massage

Examination of 11th nerve

1. Look at bulk , wasting , atrophy of both muscles
2. Look for involuntary movemnts
3. Test each sternocleidomastoid separately. Feel the opposite muscle
4. Ask him to move head down normal and than against resistance
5. Ask him to shrug his shoulders for trapezius

Examination of 12th nerve

1. Examine the tongue with in oral cavity for fasciulations , wasting
2. Ask him to protrude. Look for deviation.
3. Ask him to move tongue on each side
4. Move tongue on each side against cheek. Check for resistance

Tongue(12th CN) and Jaw (5th CN) never lie. i.e. if tongue deviated to right , lesion is in right 12th CN

Examine ALL cranial Nerves

Pre-Exam

Sit on chair OR stand on right side of patient… Sit at level with patient

Greetings: Asalam-o-Alaikum

Introduction

Consent: I shall examine your face

Ask Patient Name and call him/her by name instead of calling Aman g, Bibi etc.

Meanwhile assess Hoarseness

Inspect

Obvious findings: ptosis, proptosis,

loss of nasolabial fold, facial deviation , drooling of saliva, using tissues again & again .

NG in place,

Olfactory Nerve

1. Do you have any problem with smell?
2. Avoid detailed testing. inform examiner at the end I want to do it

2nd,3rd,4th,6th

1. Look at posture of Head: tilt of head indicates compensatory posture to correct diplopia
2. Look for ptosis
3. Look for position of eyeballs: both should be in center in normal forward gaze
4. Check Visual Acuity
5. Check Colour Vision
6. Light Reflex (2nd, 3rd)
7. Accommodation Reflex (2nd, 3rd)
8. Check Movements in H shape
9. Check Field of Vision
10. Fundoscopy: perform at the end if time permits or inform examiner

5th CN

Motor Part:

1. Ask him to clench his teeth. Check/feel bulk of masseters
2. Ask him to clench his teeth. Check/feel bulk of temporalis
3. Ask him to move jaw from side to side and then against resistance
4. Jaw Jerk (PERFORM ONLY if any +ve finding in motor exam)

Sensory Part:

1. Check Touch, Pain, Temperature in each division of 5th Nerve separately and compare
2. Corneal reflex
3. Conjunctival reflex avoid these reflexes, uncomfortable for patient

7th , 8TH

1. Check hyperacusis (7th) or Decreased Hearing (8th) … fingers tapping on both sides, then close one side with finger and test other side … and vice versa
2. Frowning : ask him to look at ceiling …. ماتھے پر بل ڈالیں
3. Ask him to close eyes forcefully and try to open
4. Look for dribbling of saliva / patient taking tissue to clean saliva
5. See nasolabial folds
6. Ask him to show teeth and comment on deviation of angle of mouth
7. Ask him to smile
8. Ask him fill cheeks with air and then gently tap
9. Check corneal & conjuctival reflex (Avoid)

Tell examiner you will like to check whistling, taste over anterior 2/3 of tongue

9th,10th

1. Is NG in place i.e. gag not intact
2. Nasal twang in speech : Ask him to say egg .. he will say eng
    a. **OPNE MOUTH….**
3. See uvula . is it central?
4. Aah test: ask him to say aah. See if uvula elevates and posterior pharyngeal wall constricts
5. Ask him to cough
6. Check gag reflex. Touch each side of pharynx separately **[ASK EXAMINER before proceeding)**
7. Palatal Reflex: touch soft palate with blunt probe, ask patient about felt or not (sensory) , check movements of soft palate
8. Check taste over posterior 1/3 of tongue (omit)
9. Carotid massage and observe associated slowing of heart rate (omit)
10. Indirect laryngoscopy (Omit)
11. Carotid massage (Omit)

Examination of 11th nerve

1. Look at bulk , wasting , atrophy of both muscles
2. Look for involuntary movements
3. Test each sternocleidomastoid separately. Feel the opposite muscle
4. Ask him to move head down normal and than against resistance
5. Ask him to shrug his shoulders for trapezius

Examination of 12th nerve

1. Examine the tongue with in oral cavity for fasciulations, wasting
2. Ask him to protrude. Look for deviation.
3. Ask him to move tongue on each side
4. Move tongue on each side against cheek. Check for resistance

TELL EXAMINER I would like to complete Exam by

1. Ding Fundoscopy 2. Checking taste 3. Checking smell in detail
4. I omitted corneal, conjunctival, gag reflex for patient comfort

motor

Examine ALL cranial Nerves

Pre-Exam

Sit on chair OR stand on right side of patient… Sit at level with patient

Greetings: Asalam-o-Alaikum

Introduction

Consent: I shall examine your face

Ask Patient Name and call him/her by name instead of calling Aman g, Bibi etc.
Meanwhile assess Hoarseness

Inspect

Obvious findings: ptosis, proptosis,
loss of nasolabial fold, facial deviation , drooling of saliva, using tissues again & again .
NG in place,

2nd,3rd,4th,6th

1. Look at posture of Head: tilt of head indicates compensatory posture to correct diplopia
2. Look for ptosis
3. Look for position of eyeballs: both should be in center in normal forward gaze
4. Light Reflex (3rd)
5. Accommodation Reflex (2nd, 3rd)
6. Check Movements in H shape

5th CN

Motor Part:

1. Ask him to clench his teeth. Check/feel bulk of masseters
2. Ask him to clench his teeth. Check/feel bulk of temporalis
3. Ask him to move jaw from side to side and then against resistance
4. Jaw Jerk (PERFORM ONLY if any +ve finding in motor exam)

7th , 8TH

1. Check hyperacusis (7th) or Decreased Hearing (8th) … fingers tapping on both sides, then close one side with finger and test other side … and vice versa
2. Frowning : ask him to look at ceiling …. ماتھے پر بل ڈالیں
3. Ask him to close eyes forcefully and try to open
4. Look for dribbling of saliva / patient taking tissue to clean saliva
5. See nasolabial folds
6. Ask him to show teeth and comment on deviation of angle of mouth
7. Ask him to smile
8. Ask him fill cheeks with air and then gently tap
9. Check corneal & conjuctival reflex (Avoid)

Tell examiner you will like to check whistling,

9th,10th

1. Is NG in place i.e. gag not intact
2. Nasal twang in speech : Ask him to say egg .. he will say eng
    a. **OPNE MOUTH….**
3. See uvula . is it central?
4. Aah test: ask him to say aah. See if uvula elevates and posterior pharyngeal wall constricts
5. Ask him to cough
6. Check gag reflex. Touch each side of pharynx separately **[ASK EXAMINER before proceeding)**
7. Palatal Reflex: touch soft palate with blunt probe, ask patient about felt or not (sensory) , check movements of soft palate
8. Indirect laryngoscopy (Omit)

Examination of 11th nerve

1. Look at bulk , wasting , atrophy of both muscles
2. Look for involuntary movements
3. Test each sternocleidomastoid separately. Feel the opposite muscle
4. Ask him to move head down normal and than against resistance
5. Ask him to shrug his shoulders for trapezius

Examination of 12th nerve

1. Examine the tongue with in oral cavity for fasciulations, wasting
2. Ask him to protrude. Look for deviation.
3. Ask him to move tongue on each side
4. Move tongue on each side against cheek. Check for resistance

TELL EXAMINER about what relevant examination you will like to do

e.g. other cranial nerves , or check sensory component of cranial nerves , limb exam

Examine ALL cranial Nerves

sensory

Pre-Exam

Sit on chair OR stand on right side of patient… Sit at level with patient

Greetings: Asalam-o-Alaikum

Introduction

Consent: I shall examine your face

Ask Patient Name and call him/her by name instead of calling Aman g, Bibi etc. **Meanwhile assess Hoarseness**

Inspect

Obvious findings: ptosis, proptosis,

loss of nasolabial fold, facial deviation , drooling of saliva, using tissues again & again .

NG in place,

Olfactory Nerve

1. Do you have any problem with smell?
2. Avoid detailed testing. inform examiner at the end I want to do it

2nd,3rd,4th,6th

1. Check Visual Acuity
2. Check Colour Vision
3. Light Reflex (2nd, 3rd)
4. Accommodation Reflex (2nd, 3rd)
5. Check Field of Vision
6. Fundoscopy: perform at the end if time permits or inform examiner

5th CN

Sensory Part:

1. Check Touch, Pain, Temperature in each division of 5th Nerve separately and compare
2. Corneal reflex
3. Conjunctival reflex avoid these reflexes, uncomfortable for patient

7th , 8TH

1. Check Decreased Hearing (8th) … fingers tapping on both sides, then close one side with finger and test other side … and vice versa
2. Check corneal & conjuctival reflex (Avoid)
3. Tell examiner you will like to check taste over anterior 2/3 of tongue

9th,10th

1. Check gag reflex. Touch each side of pharynx separately **[ASK EXAMINER before proceeding)**
2. Palatal Reflex: touch soft palate with blunt probe, ask patient about felt or not (sensory) , check movements of soft palate
3. Check taste over posterior 1/3 of tongue (omit)
4. Carotid massage and observe associated slowing of heart rate (omit)
5. Indirect laryngoscopy (Omit)
6. Carotid massage (Omit)

TELL EXAMINER I would like to complete Exam by

Doing relevant exam i.e. motor component of cranial nerves, limb exam etc

Cerebellar Examination Check List

Action	
Pre-Exam	
Stand on right side of patient	
Greetings: Asalam-o-Alaikum	
Introduction	
Consent	Assess speech
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.	
Position: if supine , ask to sit and fold arms	Truncal Ataxia ?
Examination	
Look **posture** – in unilateral lesion , patient droops down toward affected side	
Ask patient if he is having weakness of any limb/side . Cerebellar signs cant be checked if power is less than +4/5	
1. Nystagmus in Eyes: Go so much that canthus is buried , not farther than that Check both horizontal & vertical nystagmus	
2. Scanning Speech : Talk to him , ask his complete address or ask to say “Constantinople” in urdu	
3. Upper Limbs: 1. **Hypotonia** : check only at elbow 2. **Intention Tremors , Dysmetria i.e. past-pointing** : perform finger-nose-finger test 3. **Dysdiadochokinesia** : Ask him to clap hands alternatively with palm and dorsum 4. **Rebound phenomenon** : Ask to flex elbow against resistance , can hit face (You can tell examiner I did not performed it as there is chance of injury to patient) or press against hands straight forward and then suddenly release	
4. Lower Limbs : 1. **Pendulous Knee jerk** 2. **Make him stand :** patient sways towards affected side 3. **Broad based Gait: ask him to walk** 4. **Tandem Walking:**	
5. Check VII & VIII Cranial Nerves	**Shawanoma**
6. Auscultate Cerebelli	**?**
7. If unilateral signs, auscultate heart	**Source of thrombus**
If Command is to check cerebellar signs in lower limb only , then check 1. Tone 2. Heel-shin-heel test 3. Toe-finger-Toe test 4. Rebound phenomenon : ask him to raise leg against resistance and then release 5. Make him stand 6. Gait 7. Tandem walking 8. Pendulous knee jerk	

Others By Dr. Zaman …. Reason ?

Pupillary reflex in eyes

Oral (Ginivae) phenytoin

Neck (Thyroid , Lymph Nodes)

Pes Cavus (Foot)

Motor System of Lower Limb

Pre-Exam

Stand on right side of patient

Greetings: Asalam-o-Alaikum

Introduction

Consent

Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.

Exposure

Ask if pain in any part of body

Examination (WIP-TPRC)

1. **Look** for
   - i. Bulk & Wasting . Measure if required
   - ii. Involuntary movements
   - iii. Abnormal Posturing
2. Look for **fasciulations.** Tap and observe for 10 sec
3. **Tone:**
   - i. Rotate each leg separately while its on bed. Look at movements of feet
   - ii. Flex Legs at knee joint . lift by putting hands below lower thigh
   - iii. Flex both legs at knee joint after making them fully straight
   - iv. Check tone at ankle joint

DO NOT comment on cog-wheel in lower limb as rotatory movement is required for that

4. **Power:**
   - i. Ask him to raise legs. If cant lift both legs , ask him to raise arms (to see quadriplegia or hemiplegia) check power in feet even if he cant raise leg
   - ii. If can lift legs , check power at each joint
     - a. Hip : Flexion , extension , Abduction , adduction
     - b. Knee: Flexion , extension
     - c. Ankle: flexion, extension
5. **Reflexes: Re-ensure patient hammer will not harm you.** If reflex not elicited , perform **Jendrassik maneuver**
   - i. Knee jerk
   - ii. Ankle jerk
6. **Plantars : Tell him what you are going to do. Ask for pain in toe**

If not elicited , *Gordon's sign , Oppenheim's sign , Chaddock signs*

7. **Clonus: Check ankle clonus & patellar clonus**

   Check clonus if plantars upgoing or tone is increased
8. Coordination :
   Perform Heel Shin Heel test
9. Gait:
10. Ask him to sit and then stand without support

Relevant Examination (Modify case to case)

1. **Is folley in place?** Sphincters not intact
2. **Paraplegia :** check pain . locate sensory level
3. **Quadreplegia :** check pain in both upper & lower limb. And get sensory level
4. Hemiplegia: check upper limb motor system , facial nerve , NG,

Motor System of Upper Limb

Pre-Exam

Stand on right side of patient

Greetings: Asalam-o-Alaikum

Introduction

Consent

Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.

Exposure

Ask if pain in any part of body

Examination (WIP-TPRC)

1. **Look** for
    1. Bulk & Wasting . Measure if required
    2. Involuntary movements
    3. Abnormal Posturing
2. Look for **fasciulations.** Tap and observe for 10 sec
3. **Tone:**
    1. Wrist Joint : for cogwheel rigidity
    2. Elbow Joint : for spasticity , lead pipe rigidity extend elbow from fully flexed position
4. **Power: Fix proximal joint while checking power at joint distal to that**
    - **i.** Ask him to raise both arms
    - **ii.** Check power as :
        - a. **Fingers :** flexors , extensors ; fix wrist joint
        - b. **Wrist:** flexors , extensors **; hold forearm** close fist and then move it
        - c. **Elbow:** flexors , extensors
        - d. **Shoulder :** abduction , adduction (Hold below elbow and ask to move out & in)

    Normal & against resistance
5. **Reflexes: Re-ensure patient hammer will not harm you.** If reflex not elicited , perform **Jendrassik maneuver**
    1. Biceps
    2. Triceps
    3. Brachioradialis
6. **Hoffaman Sign:**
7. **Coordination :** finger-nose-finger test

Relevant Examination (Modify case to case)

1. **Is NG in place?** gag not intact
2. **Check sensory level**

Gait

Step	Command	
1	Make the patient stand	Stroke patient will not be able to stand
2	Ask him to walk normally for few feet	Base of gait , gross cerebellar deficit , parkinsonian gait
3	AND turn back	Parkinsonism difficulty in turning back
4	Come back with Tandem Walking	Suttle cerebellar deficit
5	Ask him to close feet , then with hands in front	Cerebellar atxia
6	Step 5 + close eyes	Romberg's test… posterior column deficit
7	Sit and get up without support	Proximal wekaness

Motor Neuron Disease

Command: **Examine the lower limb and do the relevant**

	PRE-EXAM	
	Stand on right side of patient	
1	Greetings: Asalam-o-Alaikum, Shake Hand	
	Introduction	
	Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.	i. **Assess speech:** Spastic (Dysarthria, Nasal) ii. Note any facial weakness
	Ask which language can he/she understand better?	
	Consent	
	Position: lying flat	
	Ask if patient is having an IV line (Branula), if yes, at which site	
	Look for NG, Foley, Drain and its contents	
	Examination Proper	
2	**Motor System:** 1. Look for: i. Bulk & Wasting. ii. Involuntary movements iii. Abnormal Posturing 2. Look for fasciulations. Tap and observe for 10 sec 3. Tone: 4. Power: 5. Reflexes: i. Knee jerk ii. Ankle jerk 6. Plantars: 7. Clonus: Check ankle clonus & patellar clonus Check clonus if plantars upgoing or tone is increased 8. Coordination:	Mixed lower and upper motor neuron signs e.g. Fasciulations +ve Hypotonia Some reflexes +++, some + wasting
3	**Sensory System of Lower Limb:** i. Pin prick ii. Vibration	intact
4	Upper Limbs: Look: specially at hands Power Reflexes Hoffman's sign	Loss of bulk specially ➢ between thumb and index ➢ eminences
5	Assess facial weakness: i. wrinkling of forehead ii. nasolabial fold iii. smile iv. show teeth	
6	Open Mouth: i. Fasciculations in tongue ii. Tongue atrophy iii. Protrude tongue iv. See uvula v. Tell examiner I will like to check Gag reflex	Weakness
7	Check extraocular movements (Grossly)	Intact
8	Check chest expansion	If no time, tell examiner
9	Sir I would like to examine for i. Chest expansion ii. Cognitive functions	?

Horner Syndrome

Command: Examine the eyes and do the relevant

	Action	Significance
	Pre-Exam	
	Stand on right side of patient	
	Greetings: Asalam-o-Alaikum	
	Introduction	
	Consent	Assess speech
	Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.	
	Position: if supine, ask to sit	
	Examination	
1	**Examine Eyes:** I. Look for Enophthalmos II. Ptosis (Marginal Reflex Distance MRD) III. Pupillary right reflex IV. Ask him to look upward V. Check Extraocular movements	Unable to look R°Brainstem Stroke
2	Touch face / arms/ shoulder for sweating	Anhydrosis
3	Look at neck i. Scars ii. Acanthosis Nigricans iii. Swellings/ lumps iv. Palpate Lymph Nodes v. Palpate Thyroid vi. Palpate carotid	?
4	Upper Chest i. Tenderness ii. Percuss and auscultate	
5	Hands: i. Clubbing ii. Nicotine staining iii. Wasting of small muscles of hands iv. Check grip v. Check sensations vi. Pulse ….Examine for cervical ribs (raise hand and check for decreasing volume)	
6	Arms: i. Acanthosis Nigricans ii. Axillary Lymph Nodes	
7	Check for Plantars	Multiple Sclerosis
8	Fundoscopy	

Speech Examination Check List

Action	Performed	
	Yes	**No**
Pre-Exam		
Stand on right side of patient		
Greetings: Asalam-o-Alaikum		
Introduction		
Consent		
Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.		
Ask 4 things before proceeding for exam		
1. What language do you speak and understand? (first language)		
2. Are you right or left handed? (to know dominant lobe)		
3. How much are you literate?		
4. Is any part of your body weak i.e. right or left sided paralysis? (e.g. if you ask him to raise left hand and he is paralyzed on that side)		
Speech Examination		
1. Start conversation with patient for 1-2 minutes and assess for **a. Rate** **b. Fluency** **c. Is speech sensible?** Does he use words correctly **Command:** What is your name , complete address .how will you go home from this place? What do you do? What have you done since morning? **And continue conversation**		
2. Check Comprehension i.e. understanding (DO NOT give visual clues) a. Give command with yes or no answer? Is this a pen? b. Simple command Close your eyes OR raise your left arm OR open your mouth c. Complex Commands: Give him piece of paper and ask to Pick paper from bed , fold it and put it in your left pocket (cross midline) OR With your right hand touch your nose and then your left ear.’		
3. Assess Naming can restrict to a **a.** Ask him to name familiar objects that are to hand e.g. watch , keys,pen b. Tell me names of all animals you know (Normal: 18-22 in 1 min) c. Tell all the words beginning from alphabet A or B		
4. Repetition: Ask him to repeat اگر مگر لیکن یا چونکہ چنانچہ اگرچہ		
5. Reading : Check there is no visual impairment a. Ask him to read a sentence b. Give him a written command to follow e.g. Mr. Asghar : Close your eyes		
6. Writing: Ask him to write a sentence		
7. Calculation: Adjust to premorbid expectations. a. Ask him 100-7 = ______ and so on b. Ask him 3+3=_____ , +3 =____ and so on c. Ask him complex commands 2 + 3; 7 + 12; 21 − 9; 4 × 7; 36 ÷ 9 etc		

Parkinsonism

Command: **Examine the face and do the relevant**

	PRE-EXAM	
	Stand on right side of patient	
1	Greetings: Asalam-o-Alaikum, Shake Hand	Cog-wheel rigidity
	Introduction	
2	Ask Patient Name and call him/her by name instead of calling Aman g , Bibi etc.	**Assess speech:** i. Monotonous ii. Low volume iii. Tremulous
	Ask which language can he/she understand better?	
	Consent	
	Position: sitting	
	Ask if patient is having an IV line (Branula), if yes, at which site	
	Look for NG, Foley, Drain and its contents	
	Examination Proper	
3	Step Back, Look at face	Mask-like Expressionless ?
4	Put hands in lap in semi-prone position	Resting Pill rolling tremors
5	Close eyes gently	Blepharoclonus - tremors
6	Glabellar tap from behind or side	Myerson's sign
7	Again shake hand	Cog-wheel rigidity
8	Flex elbow	Lead pipe rigidity
9	Ask patient to rapidly and repeatedly oppose thumb and index finger … test both hands	
10	Stand up	bradykinesia
11	Walk … assess gait	i. Freezing – difficulty in initiating movement ii. Stooped posture iii. Narrow based gait iv. Hesitant shuffling gait v. Decreased arm swing vi. Difficulty in stopping and turning rapidly back
12	**Retropulsion / Pull Test:** I am going to pull you from hip. Keep your balance. you can take steps back if needed	+ve = Postural Instability +ve if Person takes ≥3 steps Or Falls without taking a step
13	Ask patient to sit and **examine Eyes** for i. Vertical gaze palsy ii. Horizontal nystagmus (cerebellar)	
14	Perform Finger **Nose Test**	Dysdiadochokinesia
15	Check hand writing	micrographia
15	Ask patient to lie and check **Plantars**	
16	Sir I would like to check i. Blood Pressure for orthostatic hypotension ii. Mini Mental State Exam iii. For seborrhea (sweating) iv. Fundoscopy Retinitis Pigmentosa	 Shy-Drager syndrome For dementia ? in Hallervorden- Spatz Disease / Pantothenate kinase-associated neurodegeneration

Causes of Proximal Myopathy:

Endocrine	Acromegaly Hyperthyroidism, Hypothyroidism Hyper-parathyroidsm, hypo-parathyroidsm (osteomalacia) Cushing Syndrome
Rheumatologic	Dermatomyositis, Polymyositis, Inclusion body myositis RA, SLE
NMJ Dx	Myasthenia Gravis, Lambert Eaten Syndrome
Drugs	Corticosteroids, Statins, fibrates Zidovudine, alcohol, amiodarone
Metabolic	Enzyme deficiency, mitochondrial disease
Muscular dystrophy	Limb girdle muscular dystrophy, Fascio-scapulo-humeral dystrophy

Proximal Myopathy Examination

Command: **Examine the lower limbs neurologically and do the relevant**

Neurological Examination	
Inspection	Symmetric wasting
Palpation	Check tenderness
Bulk, Tone,	
Power	Check for repetitive testing (MG. Lambert eaten)
, Reflexes, Plantars	+++ in hyperthyroidism, + or – in hypothyroidism with delayed relaxation
Coordination,	
Gait	Waddling gait
Gower Sign	
Relevant Examination to find Etiology	
Look	i. Moon face ii. Buffalo hump iii. Visible thyroid swelling
Hands	i. Sweating / coarse skin (in hyper or hypo thyroidism) ii. Signs of acromegaly iii. Tremors iv. Gottron Papules v. Paper Thin Skin
Pulse	Hyperthyroidism
B.P.	Cushing Syndrome, Thyrotoxicosis , hypothyroidism
Hair	Coarse in hypothyroidism
Face	Heliotrope rash V sign Thyroid eye disease Cataract in Cushing's Chvostek Sign
Sternum	Bone tenderness IN osteomalacia
Go on back	Palpate thyroid Auscultate chest – ronchi of asthma for which might be taking steroids , small cell CA
Legs	Non pitting edema in hypothyrodism